

FIG. 1a

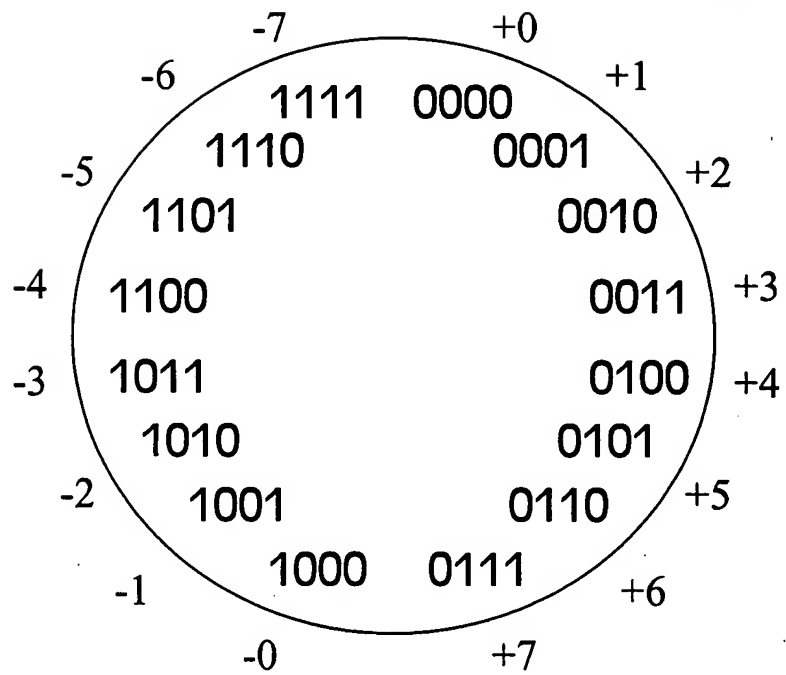
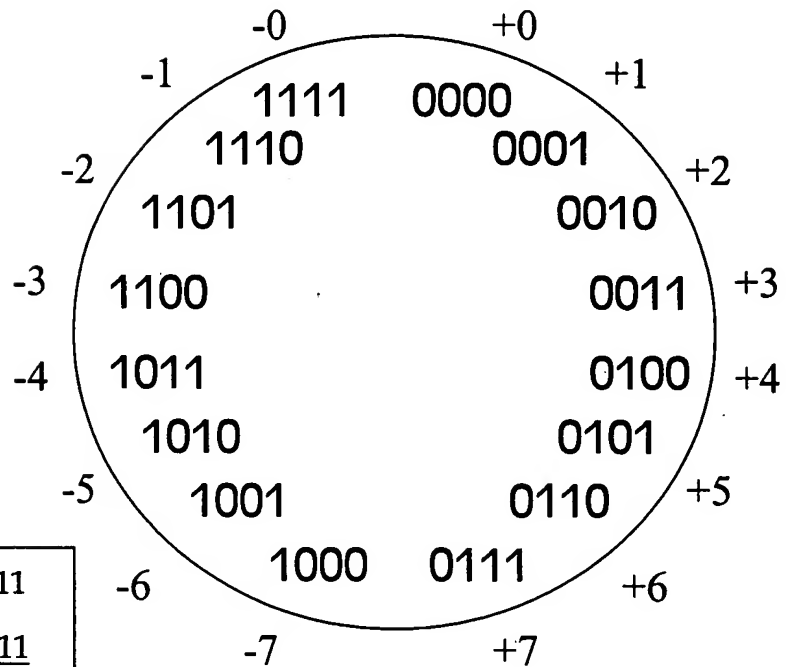


FIG. 1b



$2^4 - 1 =$	15	1111
subtract	7	<u>-0111</u>
to get	-7	1000

FIG. 1c

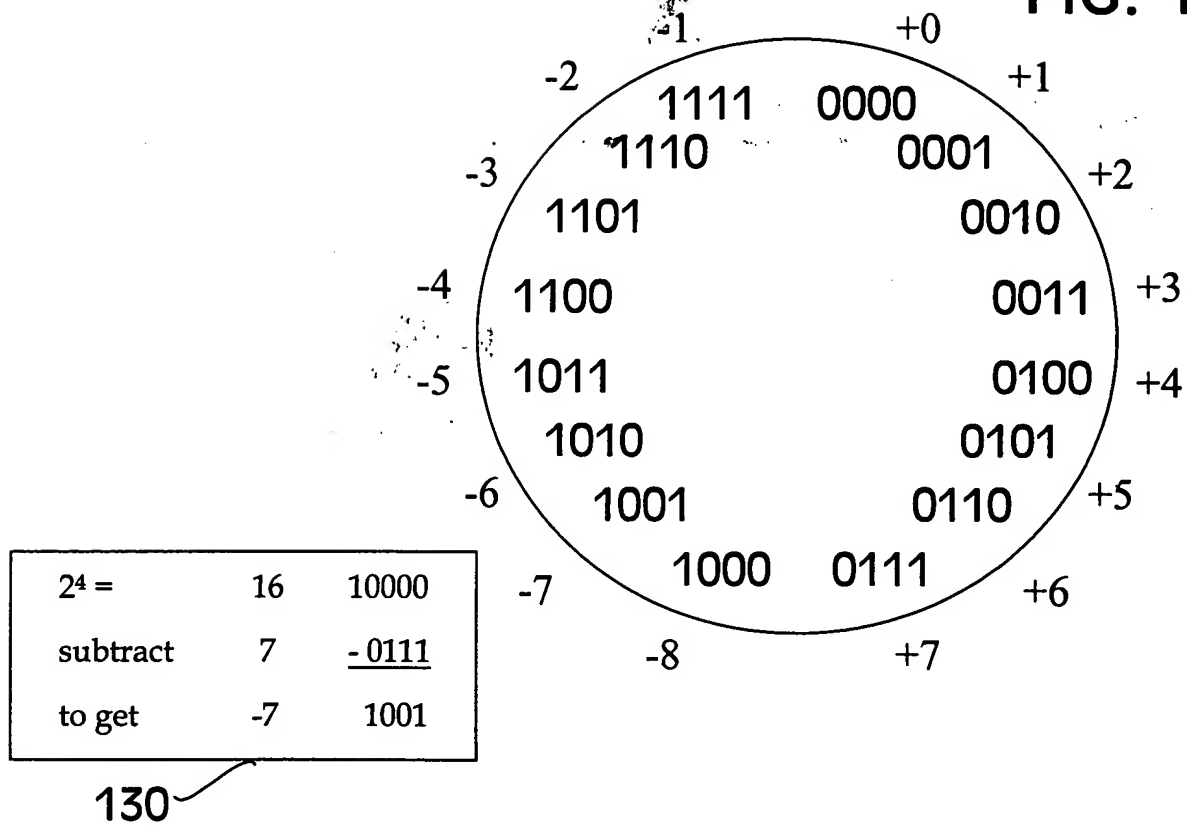


FIG. 2

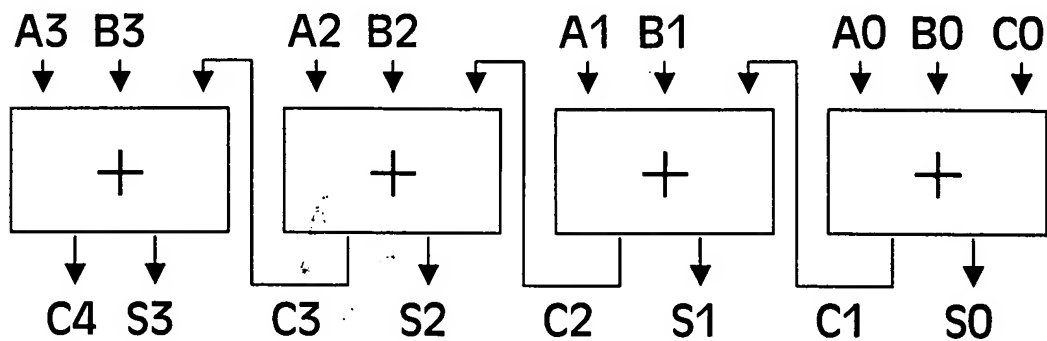


FIG. 3a

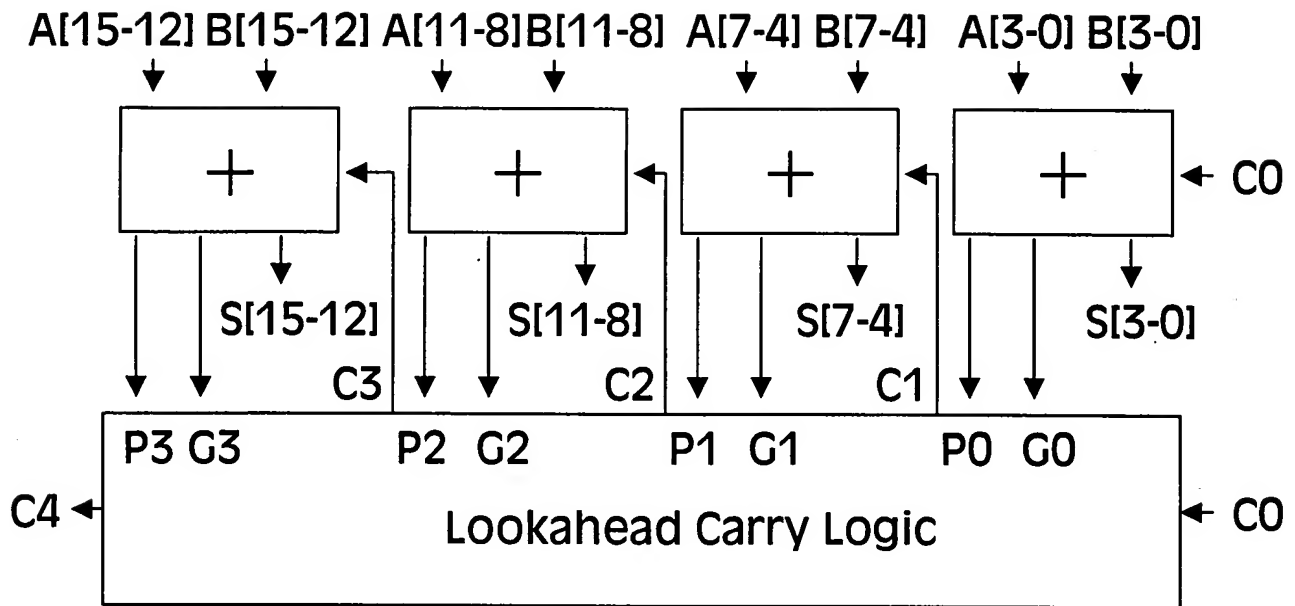


FIG. 3b

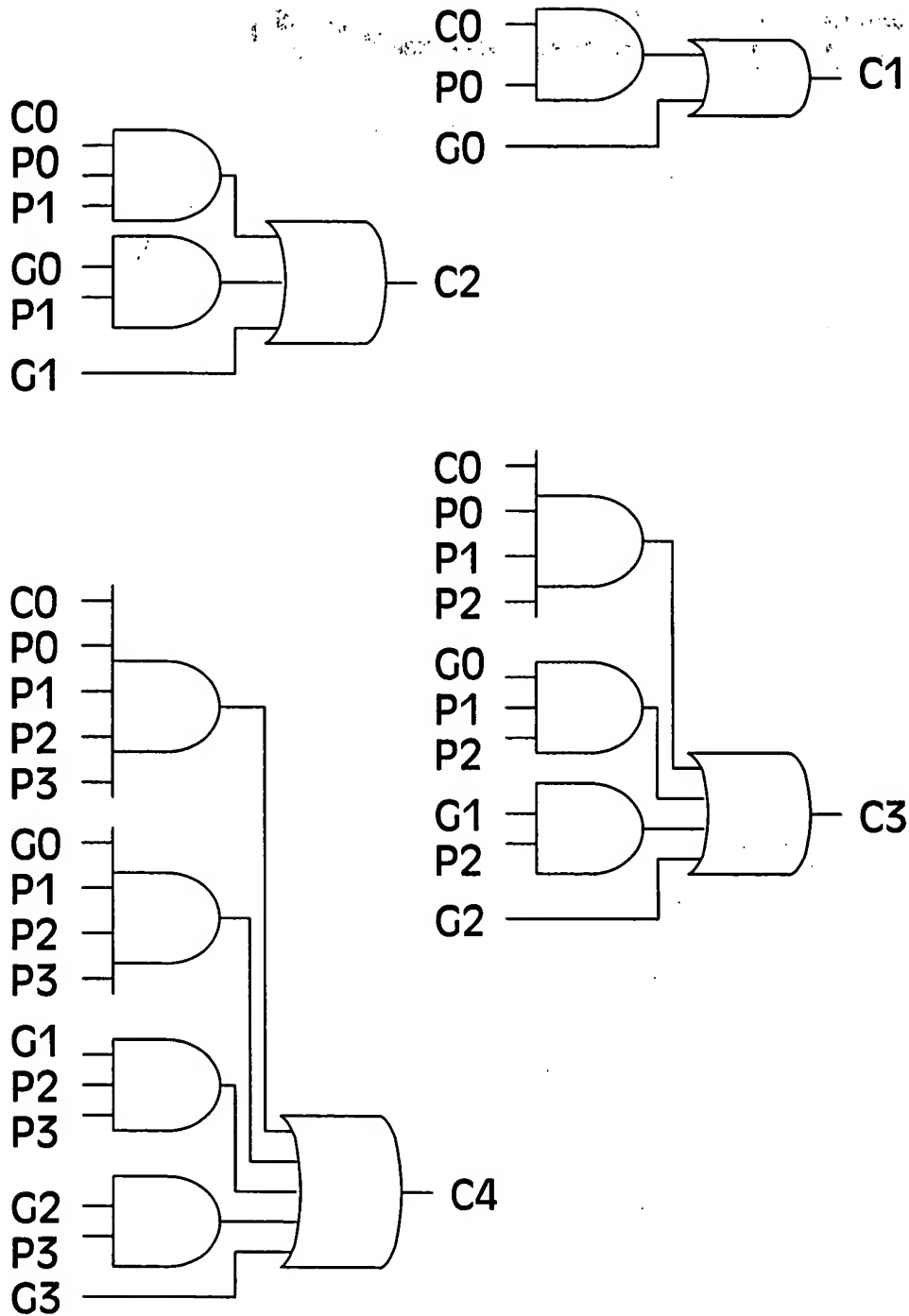
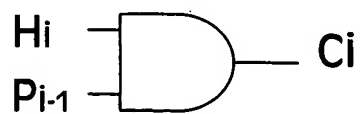
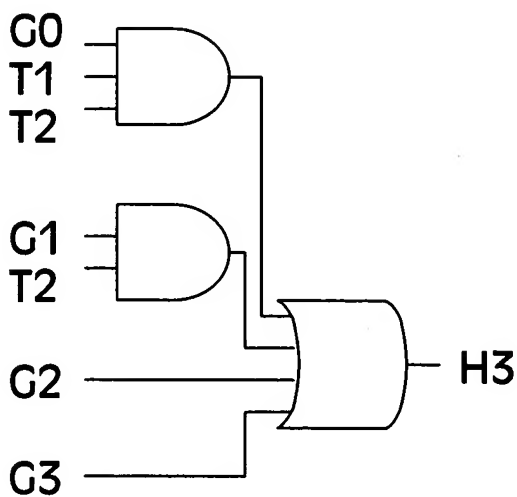
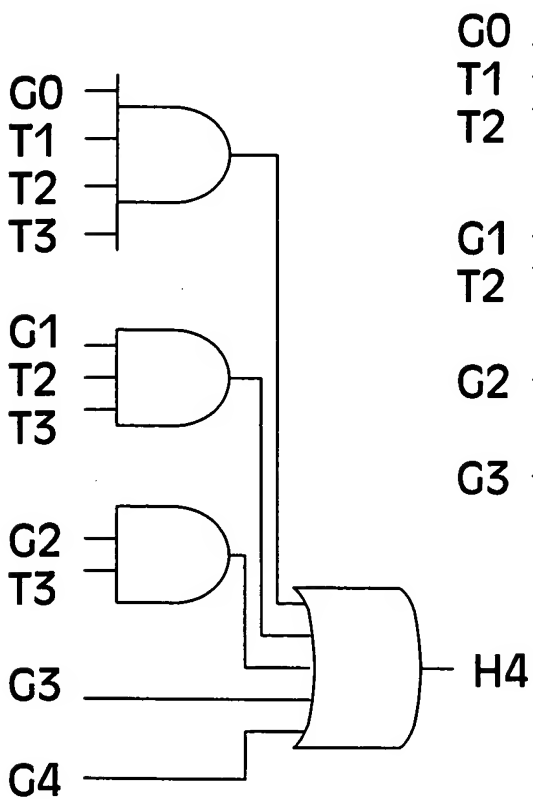
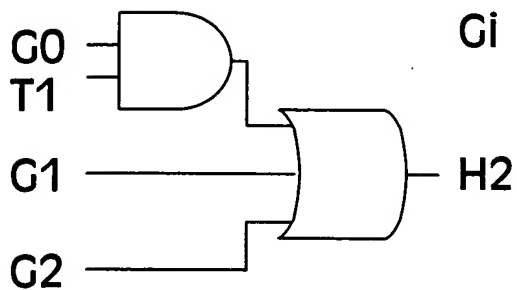
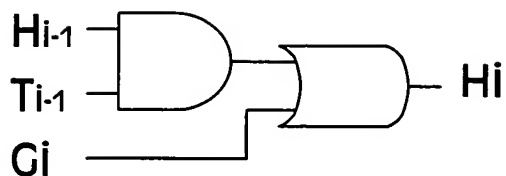
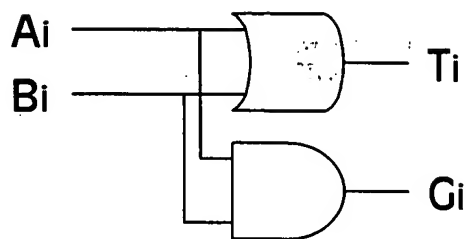
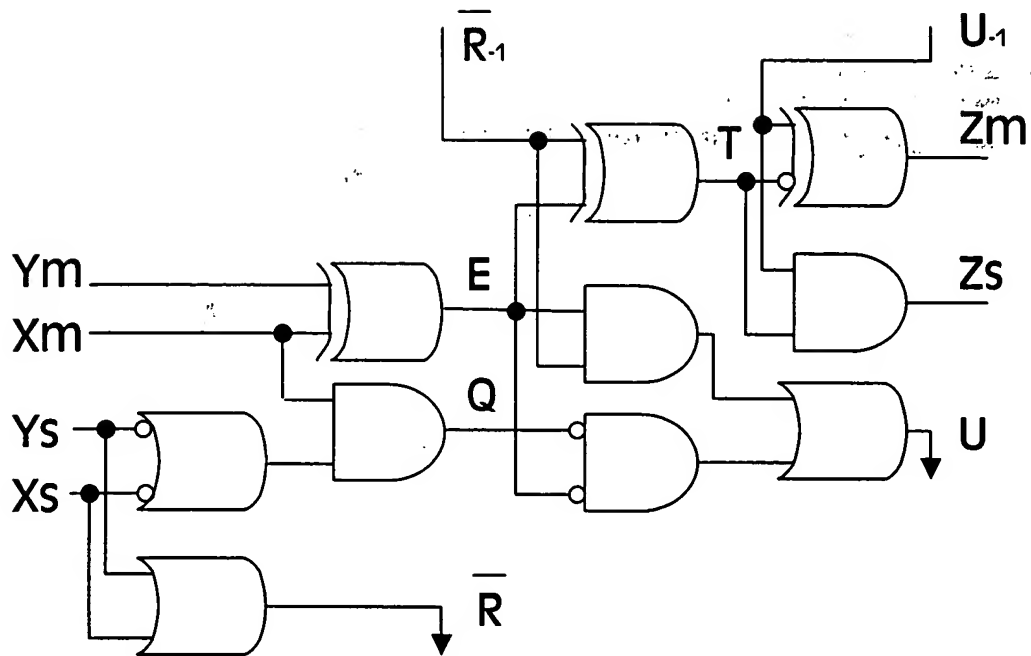


FIG. 3c



**PRIOR ART**  
**FIG. 4**



**PRIOR ART**  
**FIG. 5**

Pair i	0 + 0	1 + 1	-1 + -1	
Pair i -1	any	any	any	
Output	$C_i = 0$ $U_i = 0$	$C_i = 1$ $U_i = 0$	$C_i = -1$ $U_i = 0$	

Pair i	0 + 1	-1 + 0	-1 + 0	0 + 1
Pair i -1	no -1	no -1	has -1	has -1
Output	$C_i = 1$ $U_i = -1$	$C_i = 0$ $U_i = -1$	$C_i = -1$ $U_i = 1$	$C_i = 0$ $U_i = 1$

Rules for adding sign-digit numbers:

$$\text{Sum}_i = C_{i-1} + U_i$$



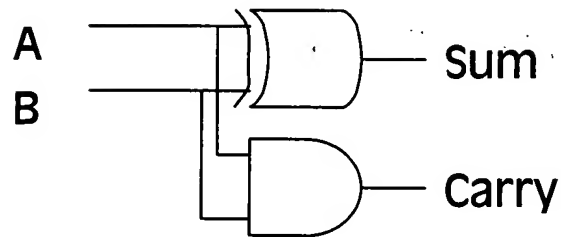


FIG. 7a

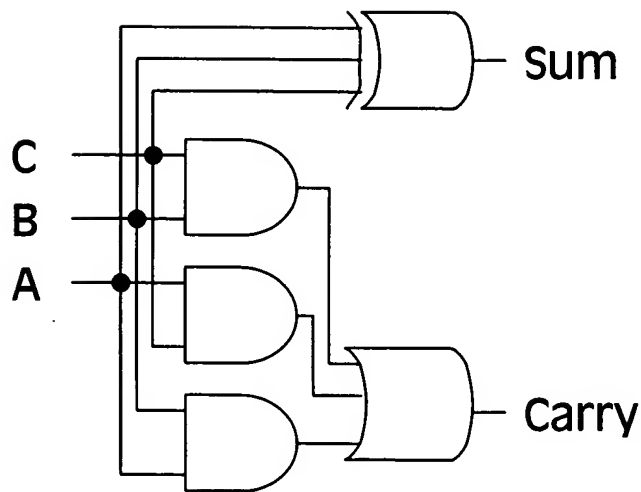


FIG. 7b





	$C_2S_2$	$C_1S_1$	$C_0S_0$
910	00	00	00
911	01	01	10
912	01	10	00
913	00	11	10
914	10	00	00
915	11	01	10
916	11	10	00
917	10	11	10

FIG. 9a

	$C_2S_2$	$C_1S_1$	$C_0S_0$
920	11	11	11
921	10	10	01
922	10	01	11
923	11	00	01
924	01	11	11
925	00	10	01
926	00	01	11
927	01	00	01

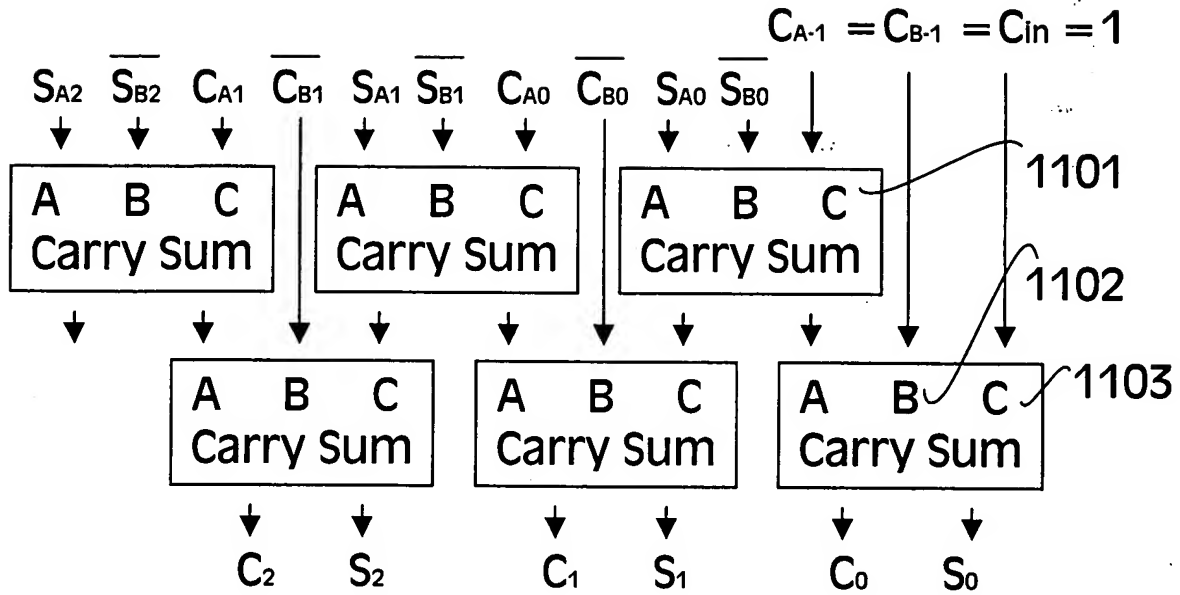
FIG. 9b

	$C_2S_2$	$C_1S_1$	$C_0S_0$		$\overline{C_2S_2}$	$\overline{C_1S_1}$	$\overline{C_0S_0}$	
3 =	00	01	01	→	11	10	10	= 2
2 =	00	01	00	→	11	10	11	= 3
1 =	00	00	01	→	11	11	10	= -4
0 =	00	00	00	→	11	11	11	= -3
-1 =	01	01	01	→	10	10	10	= -2
-2 =	01	01	00	→	10	10	11	= -1
-3 =	01	00	01	→	10	11	10	= 0
-4 =	01	00	00	→	10	11	11	= 1

$$N \rightarrow \overline{N} = -N-3(\text{mod } 8)$$

FIG. 10

# FIG. 11



# FIG. 12

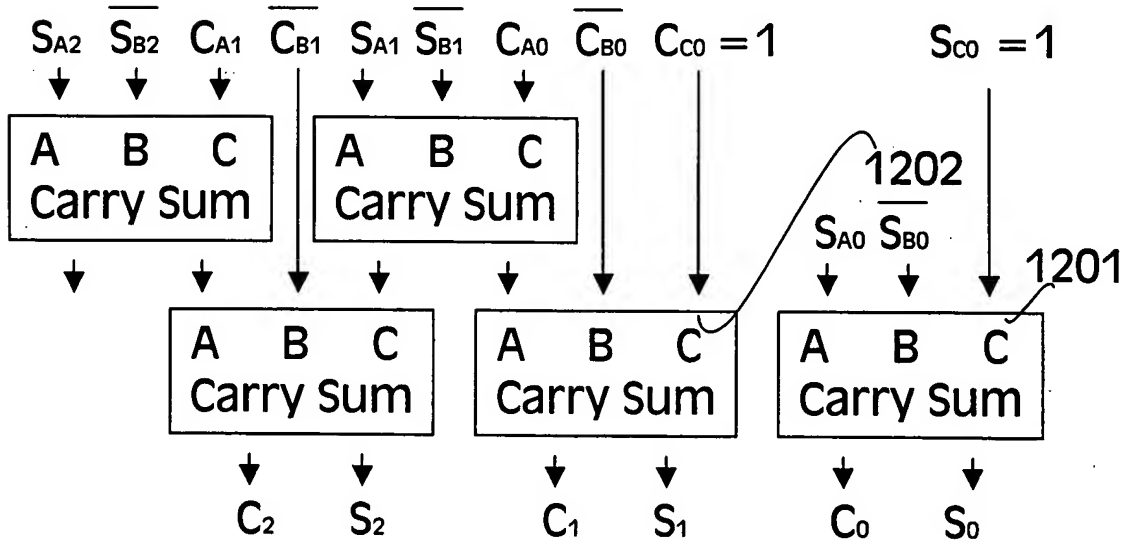


FIG. 13a

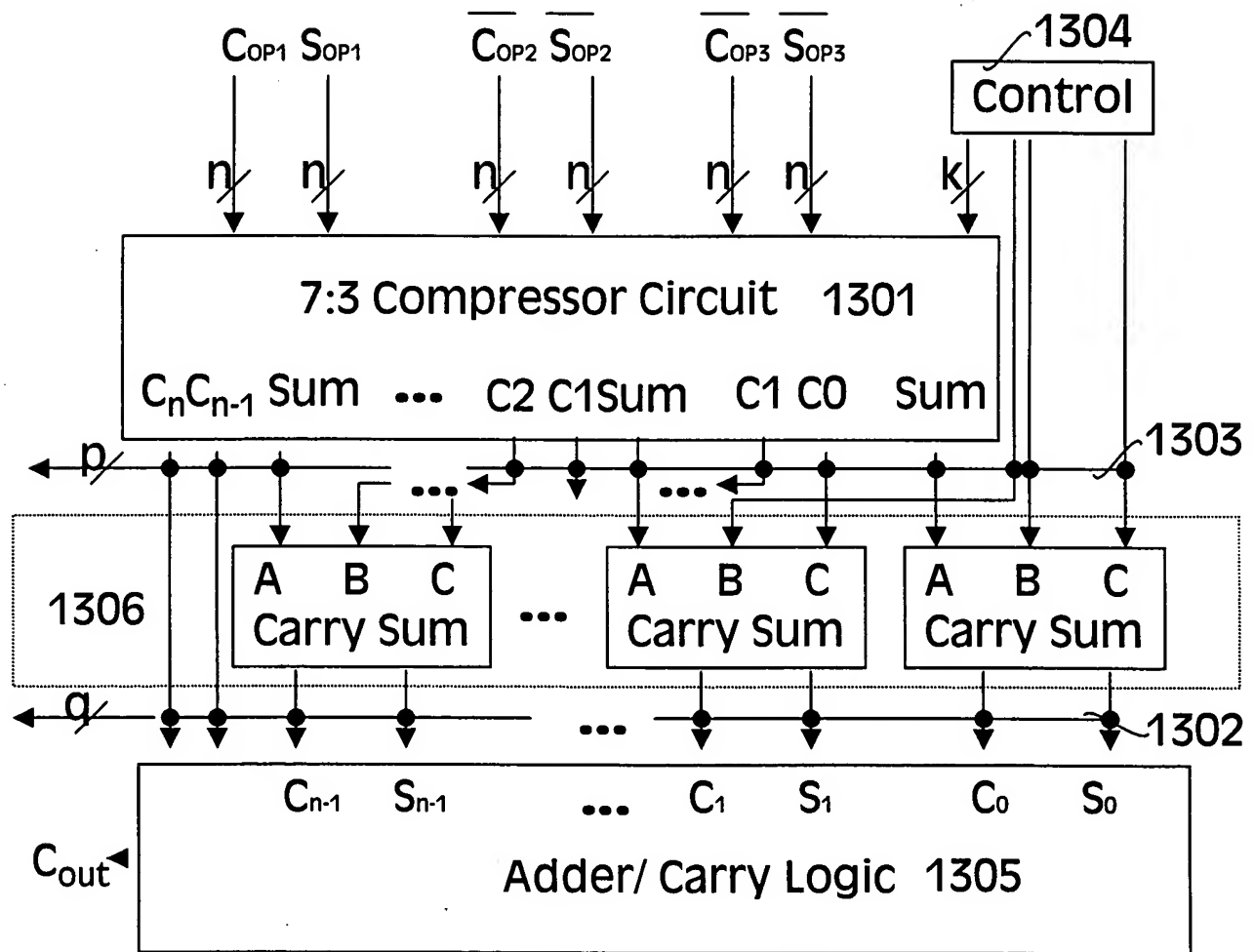


FIG. 13b

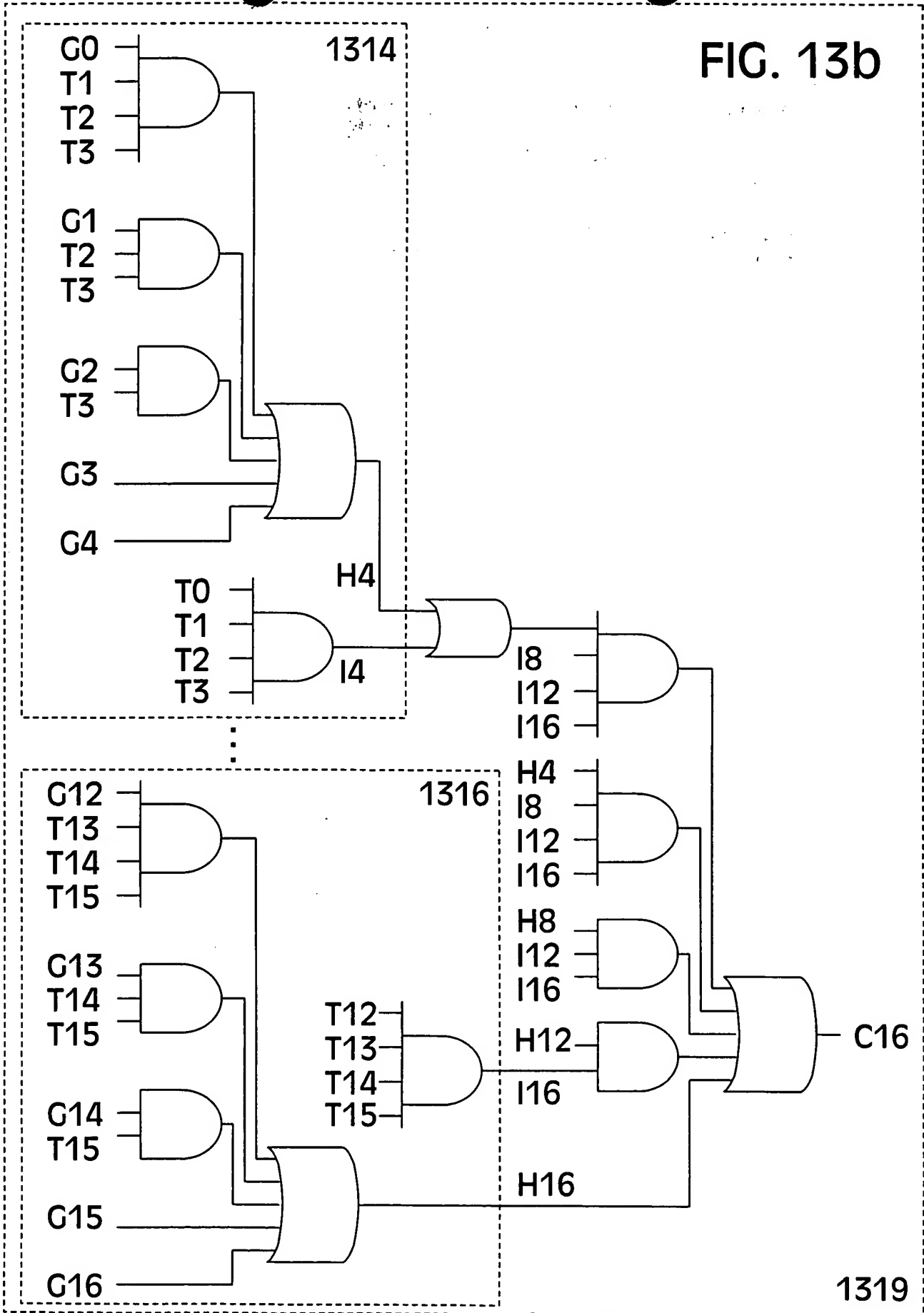


FIG. 13c

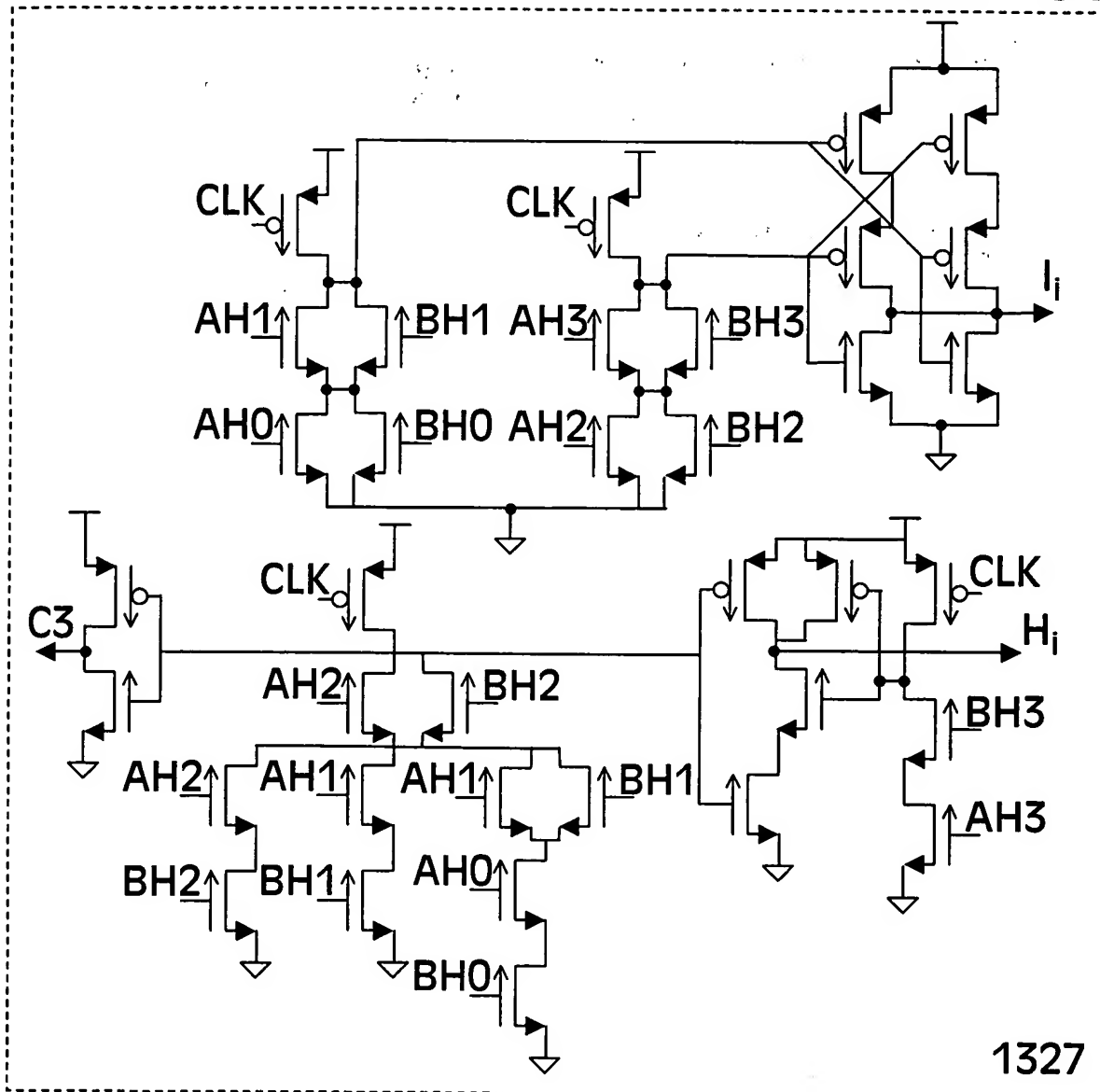


FIG. 13d

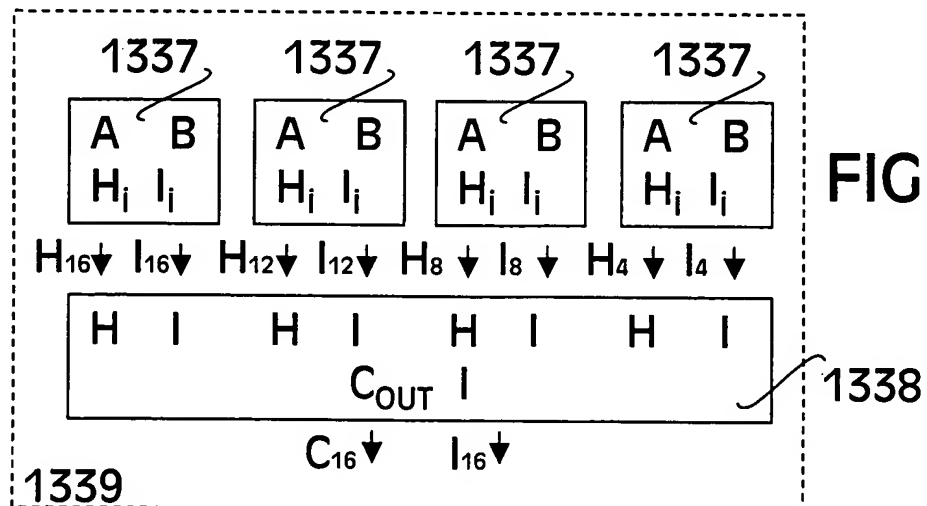


FIG. 13e

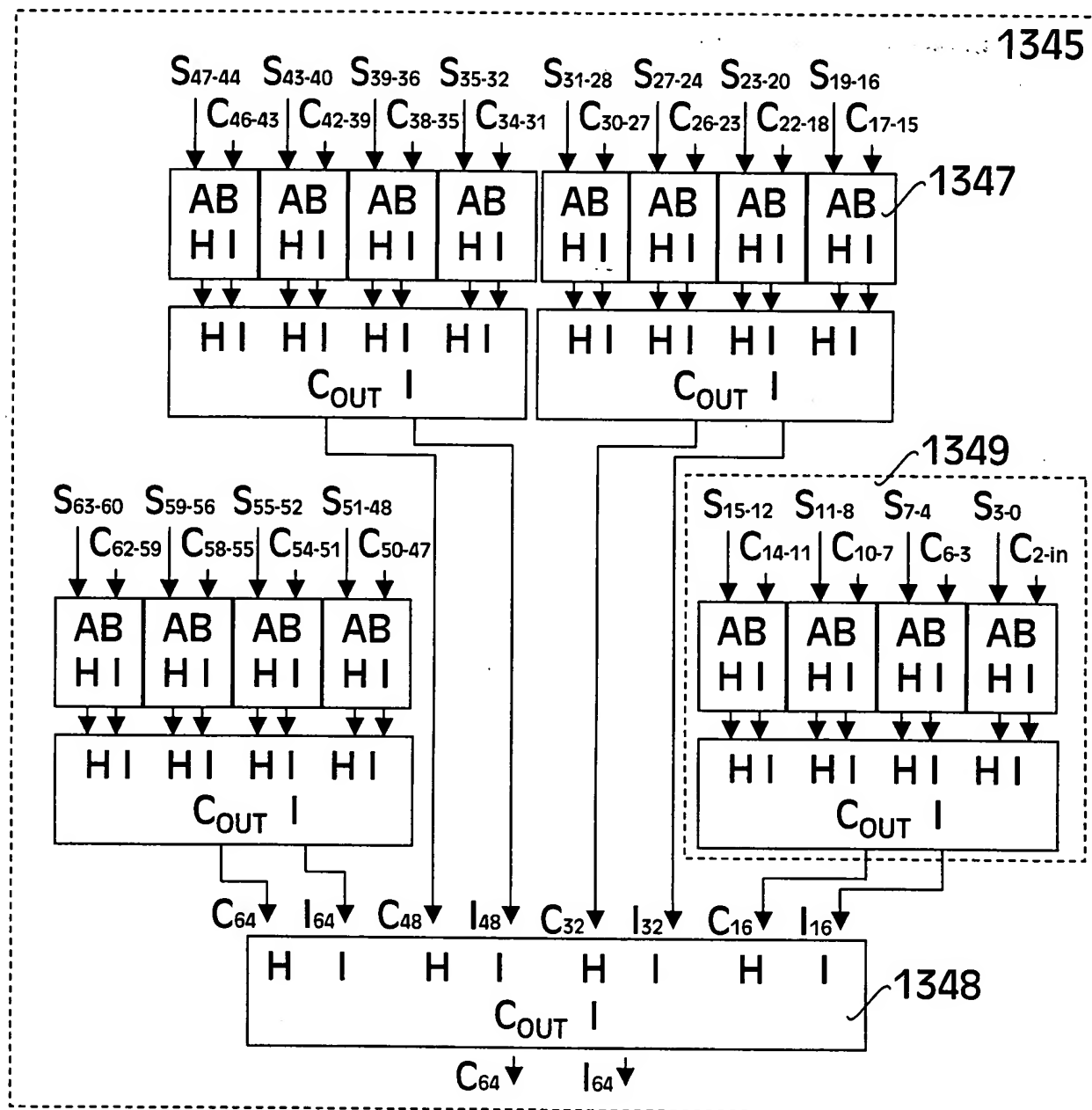


FIG. 14

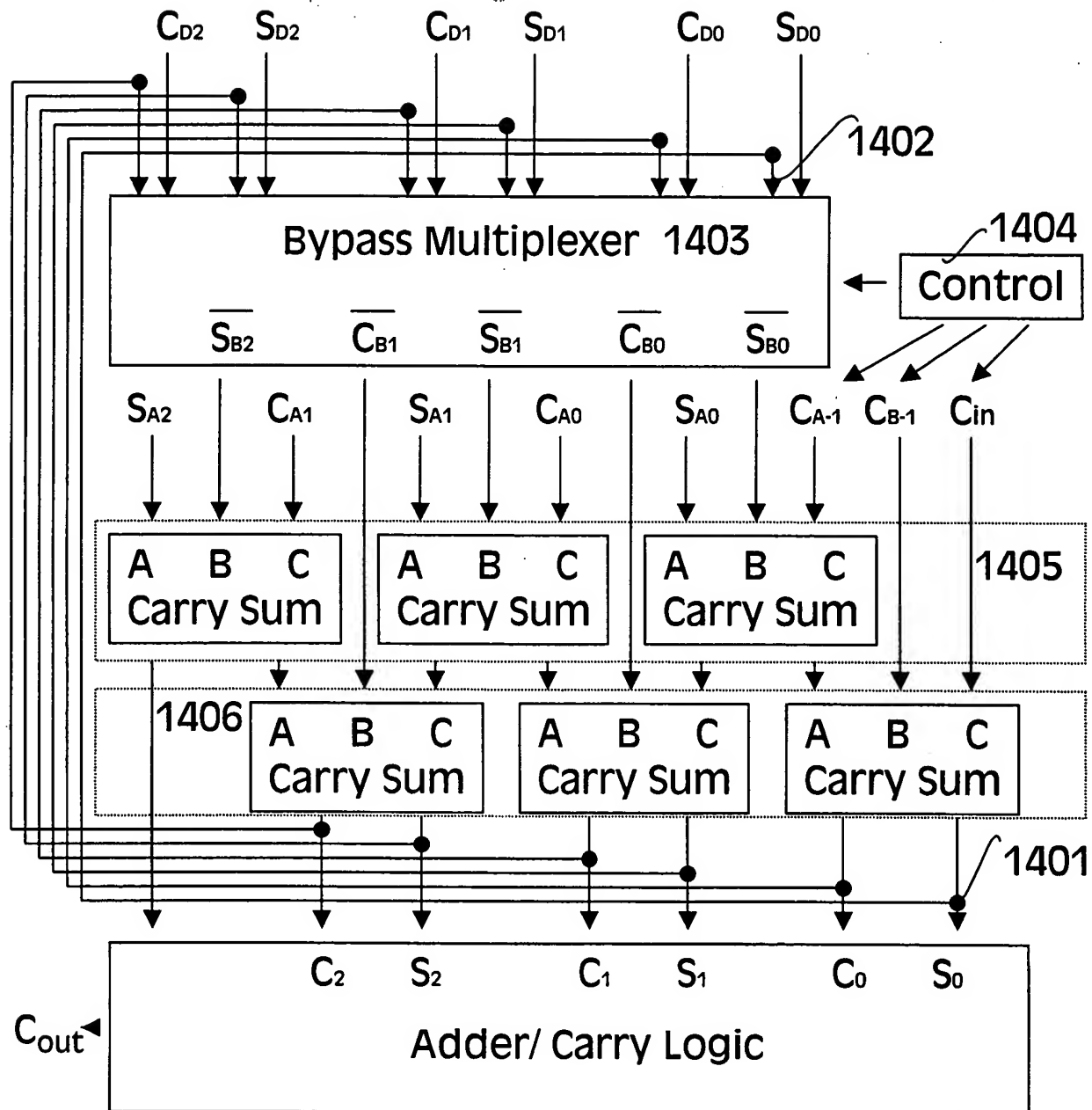




FIG. 15

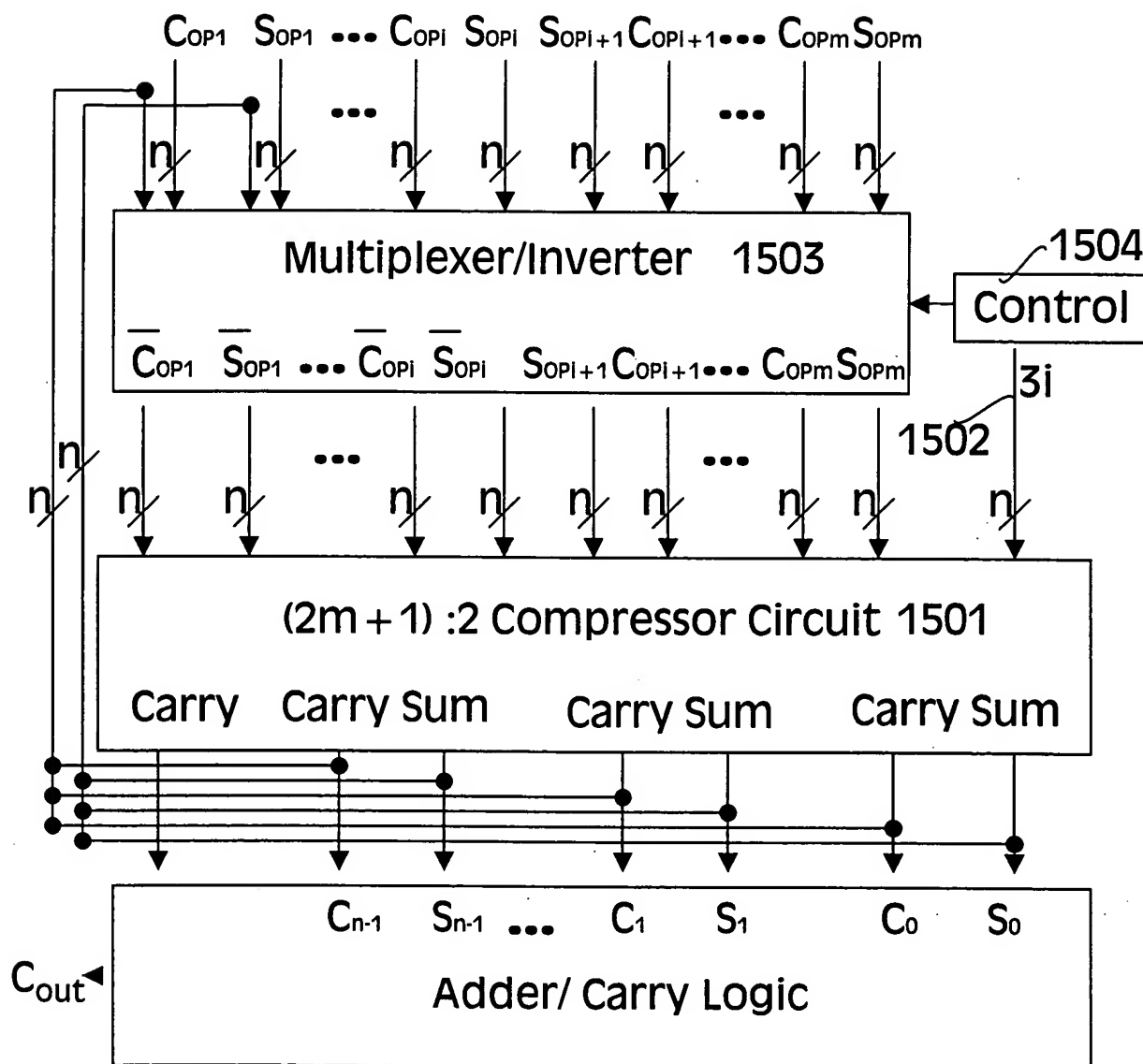


FIG. 16a

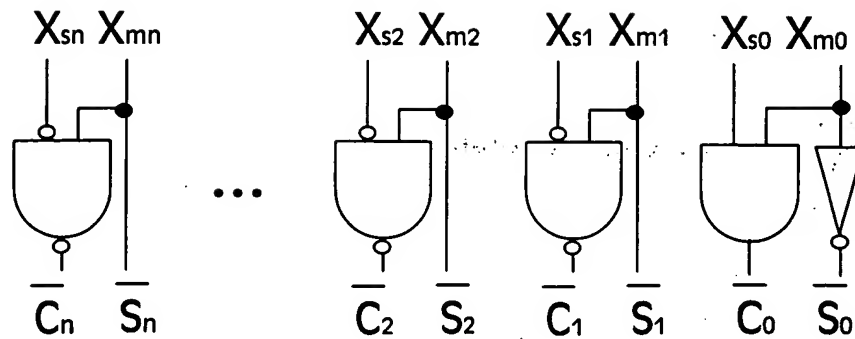
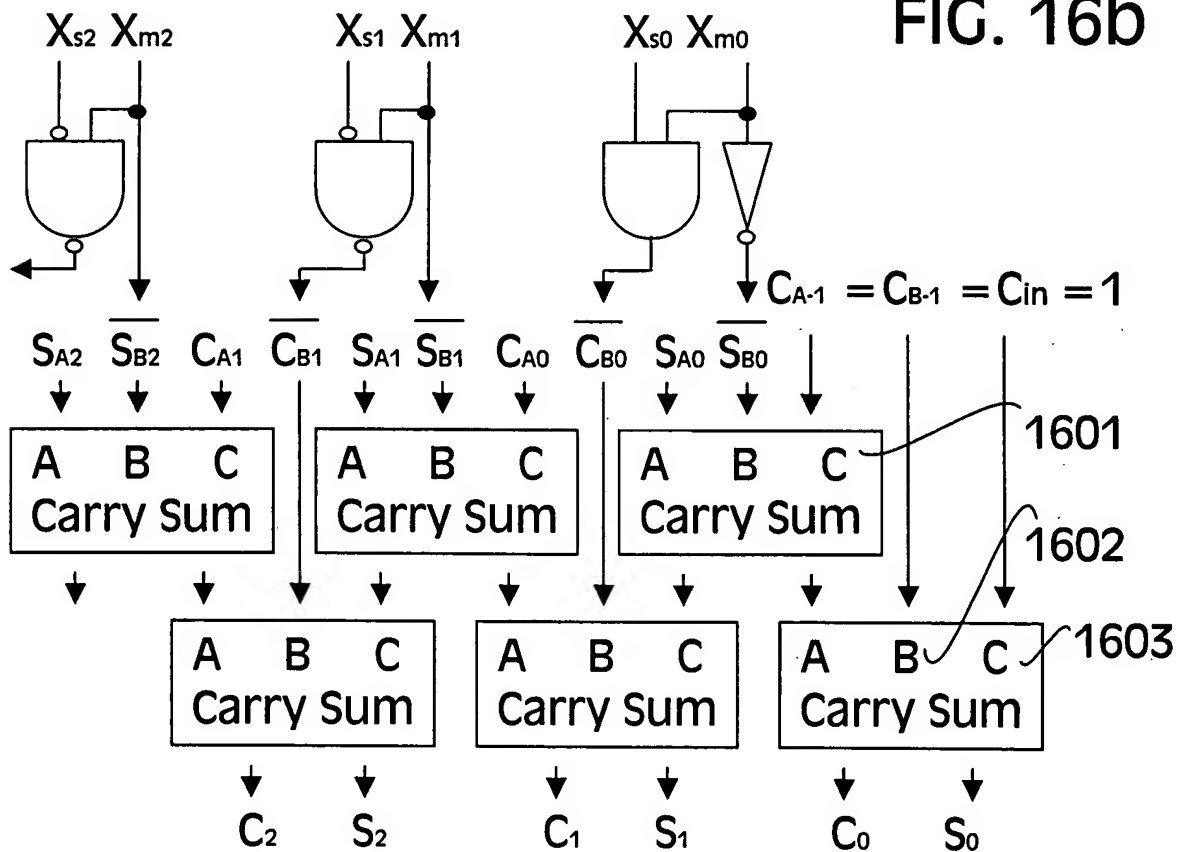
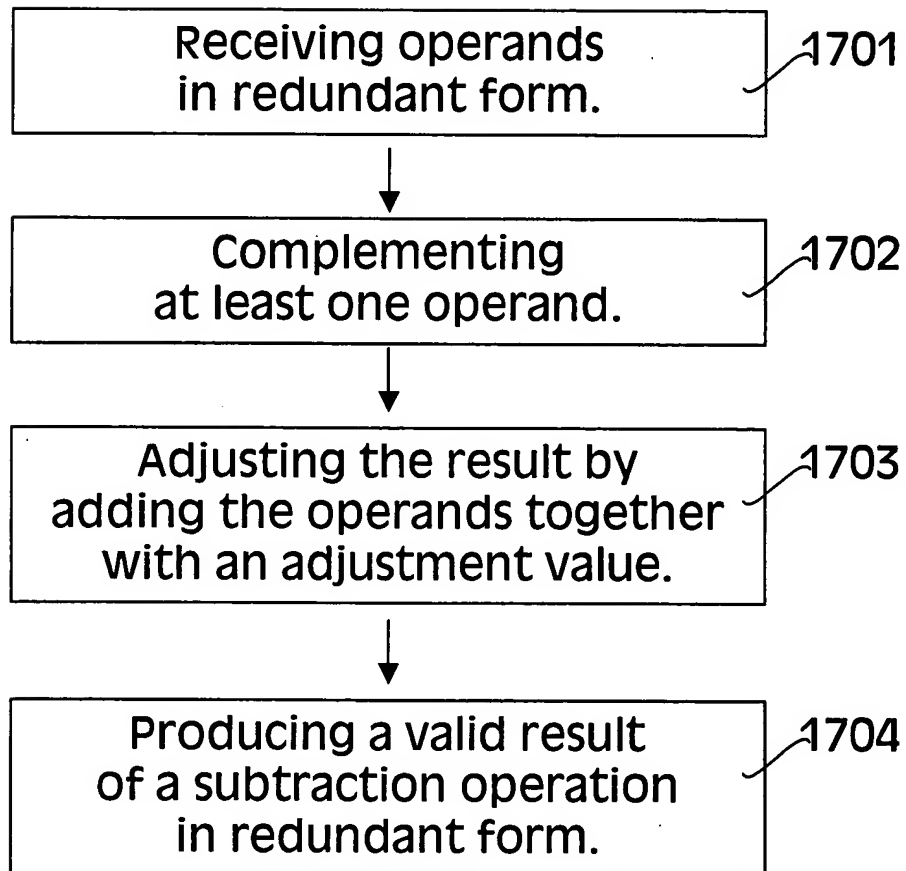


FIG. 16b



**FIG. 17**



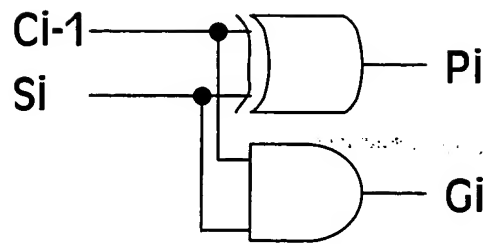


FIG. 18a

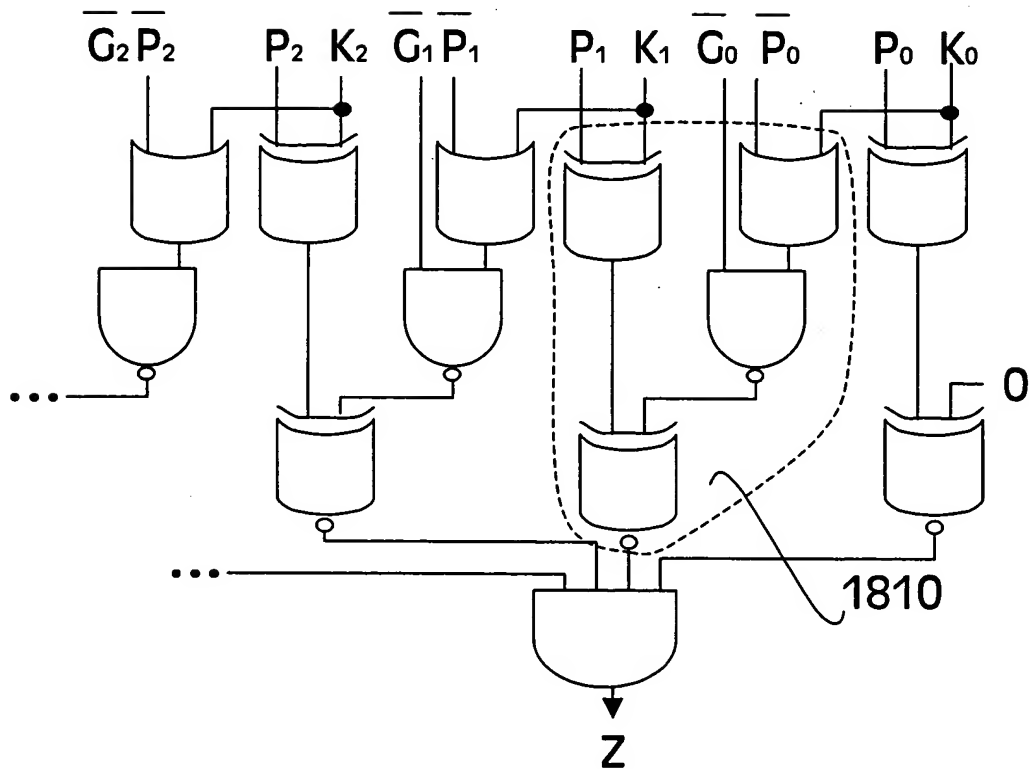


FIG. 18b

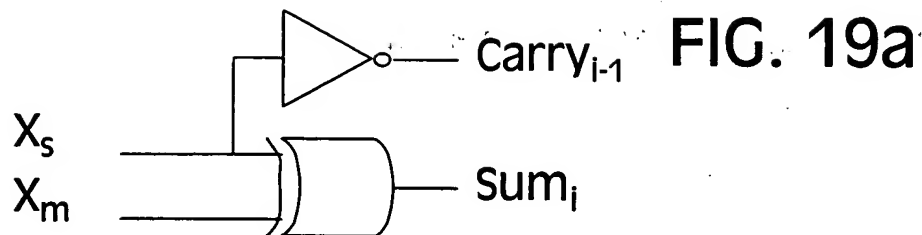


FIG. 19b

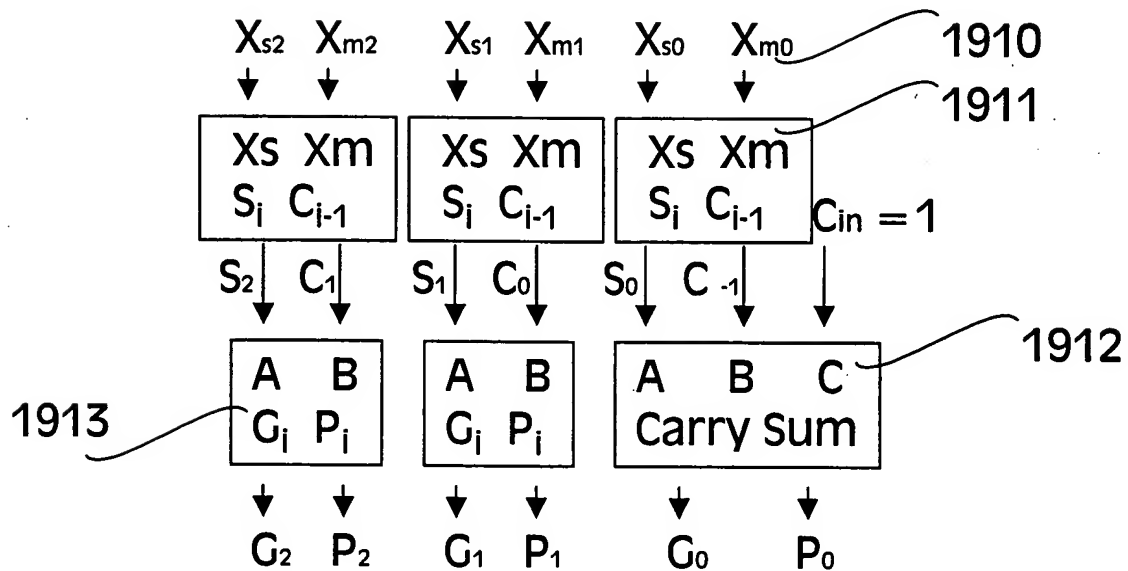


FIG. 20

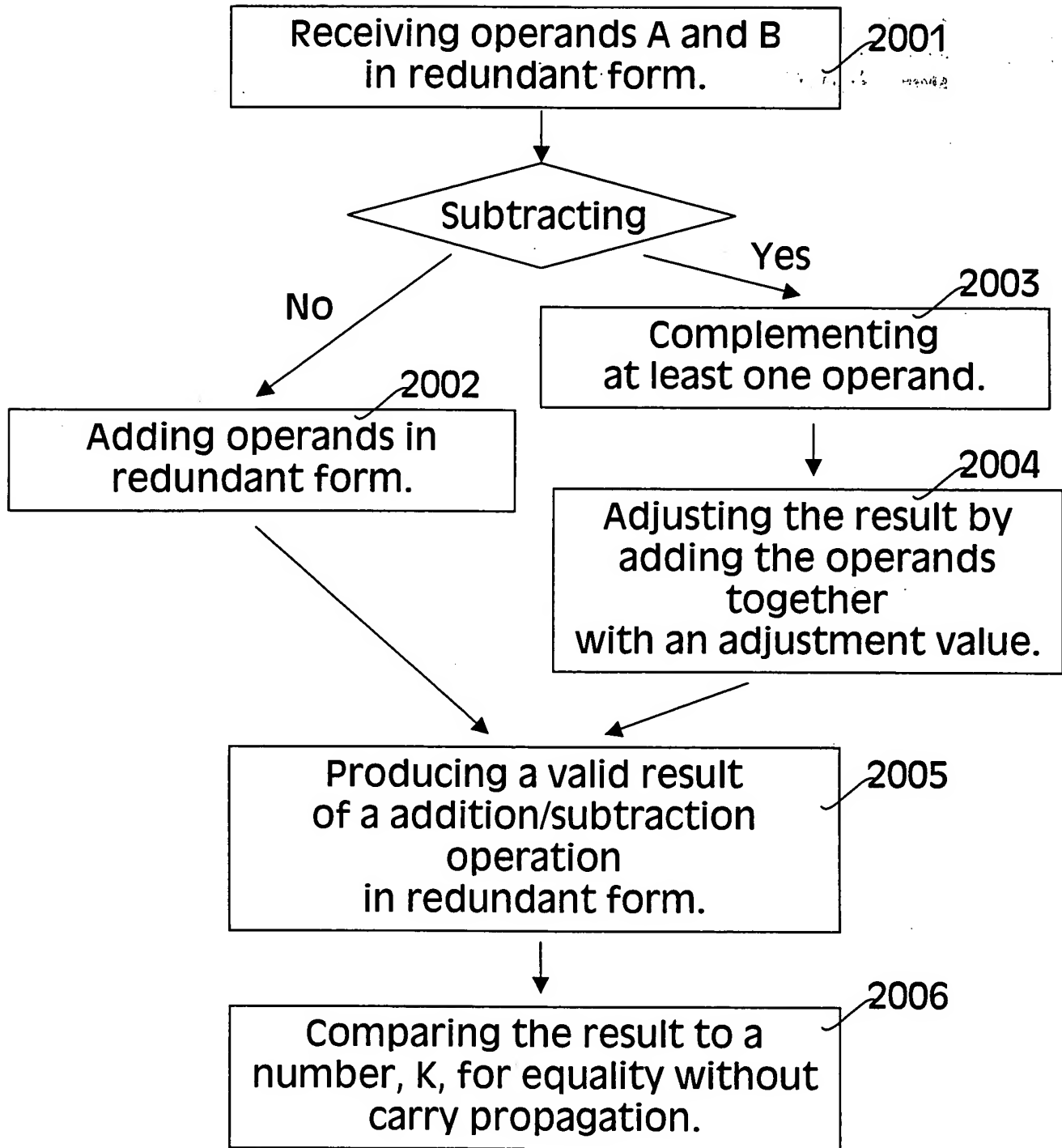


FIG. 21a

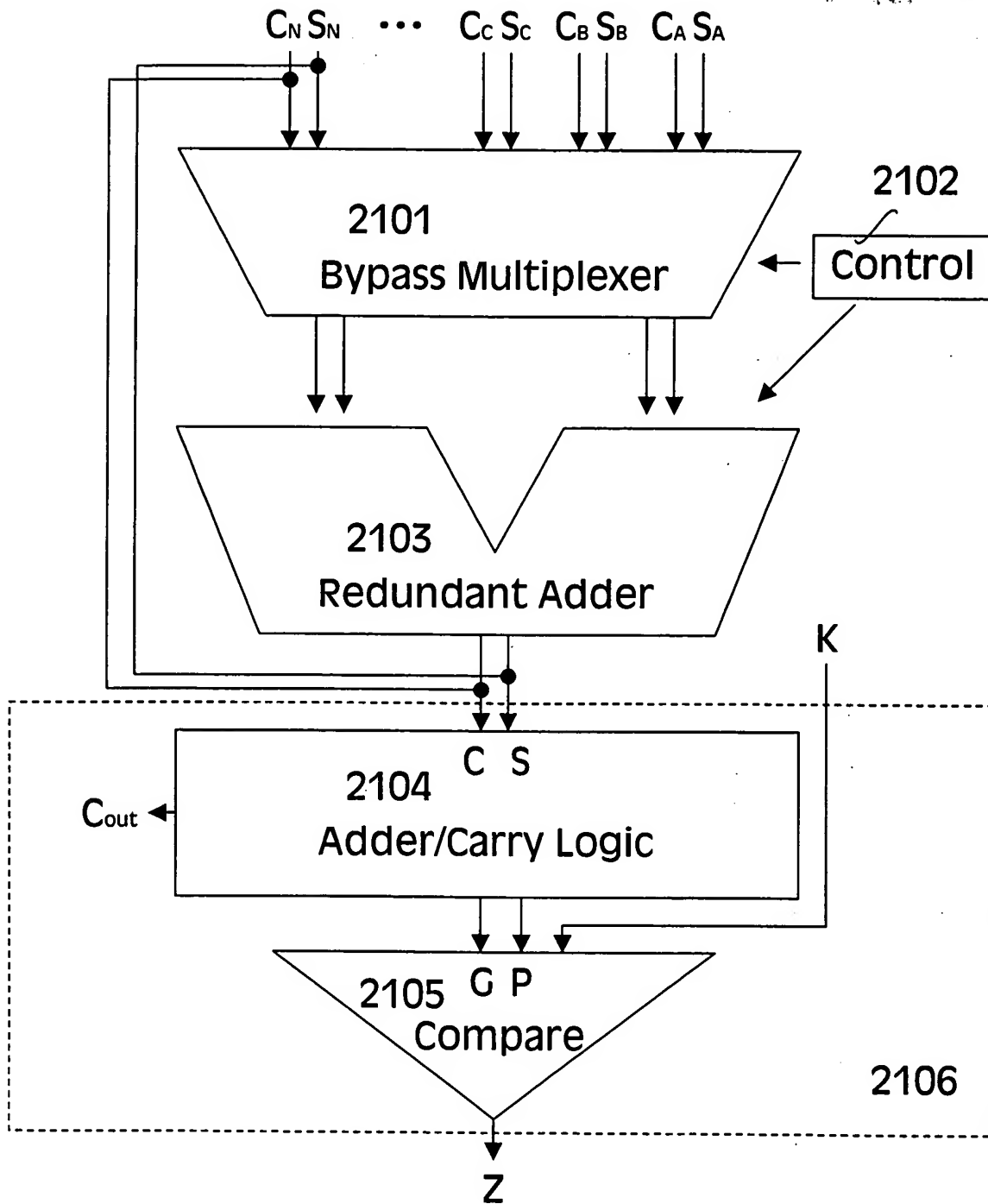
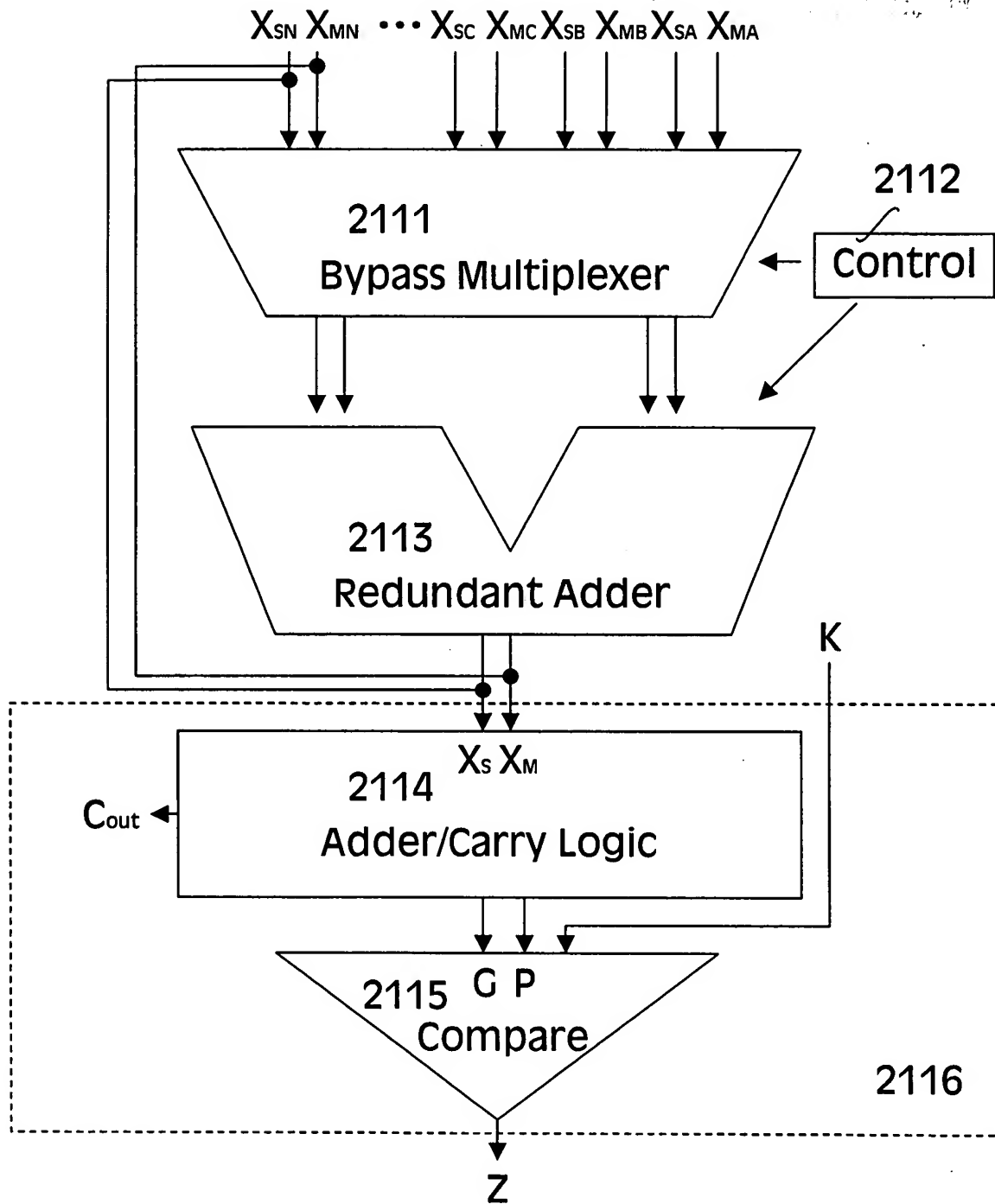


FIG. 21b





# FIG. 22a

$C_2S_2$	$C_1S_1$	$C_0S_0$	$(S_2 \oplus C_1) \oplus (S_1 \oplus C_0)$	
00	00	00	0 0 0 0 0 0 0	2200
01	01	10	1 1 0 0 1 1 1	2201
01	10	00	1 0 1 0 0 0 0	2202
00	11	10	0 0 1 0 1 1 1	2203
10	00	00	0 0 0 0 0 0 0	2204
11	01	10	1 1 0 0 1 1 1	2205
11	10	00	1 0 1 0 0 0 0	2206
10	11	10	0 1 1 0 1 1 1	2207

# FIG. 22b

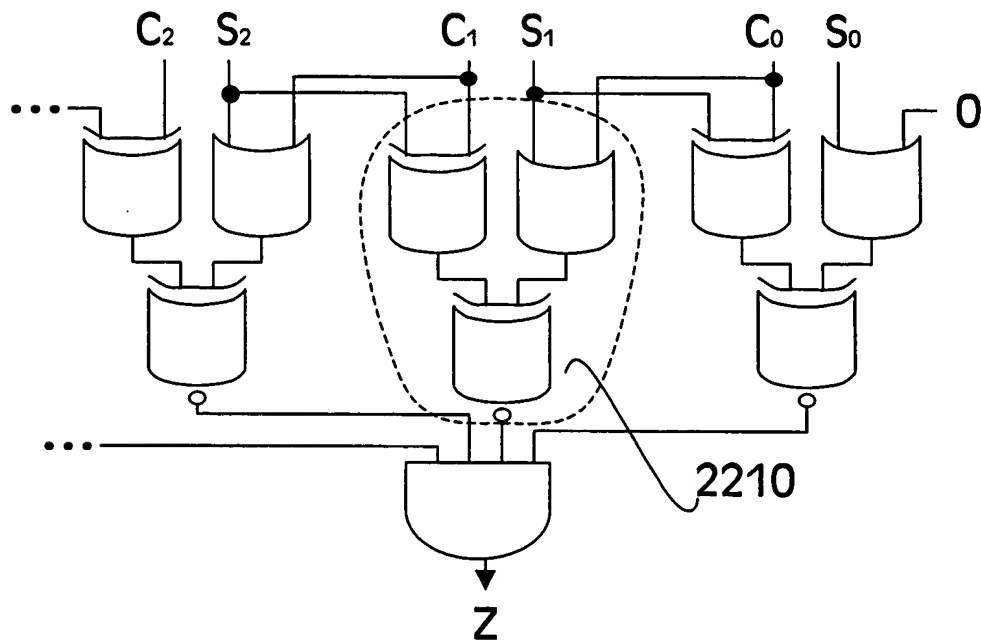


FIG. 22c

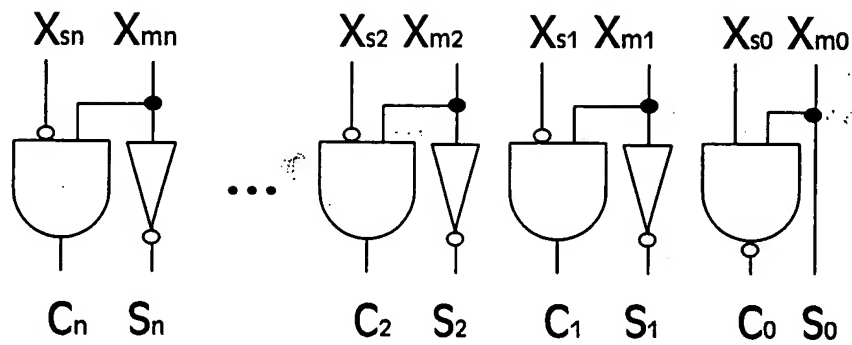


FIG. 22d

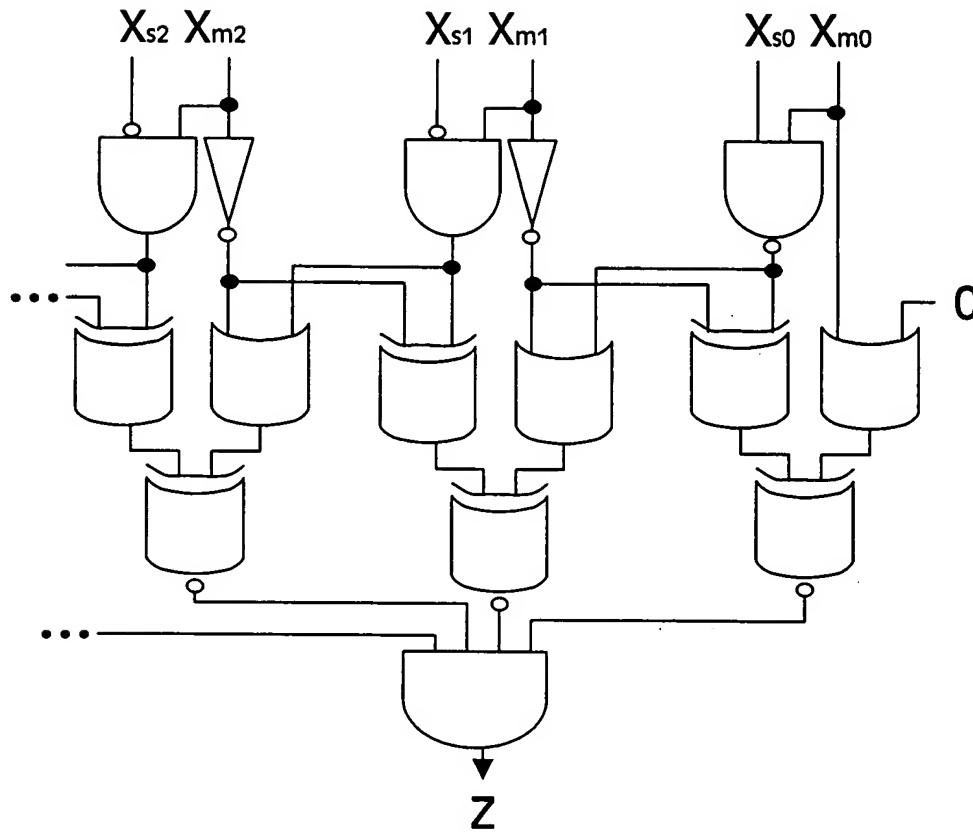


FIG. 23

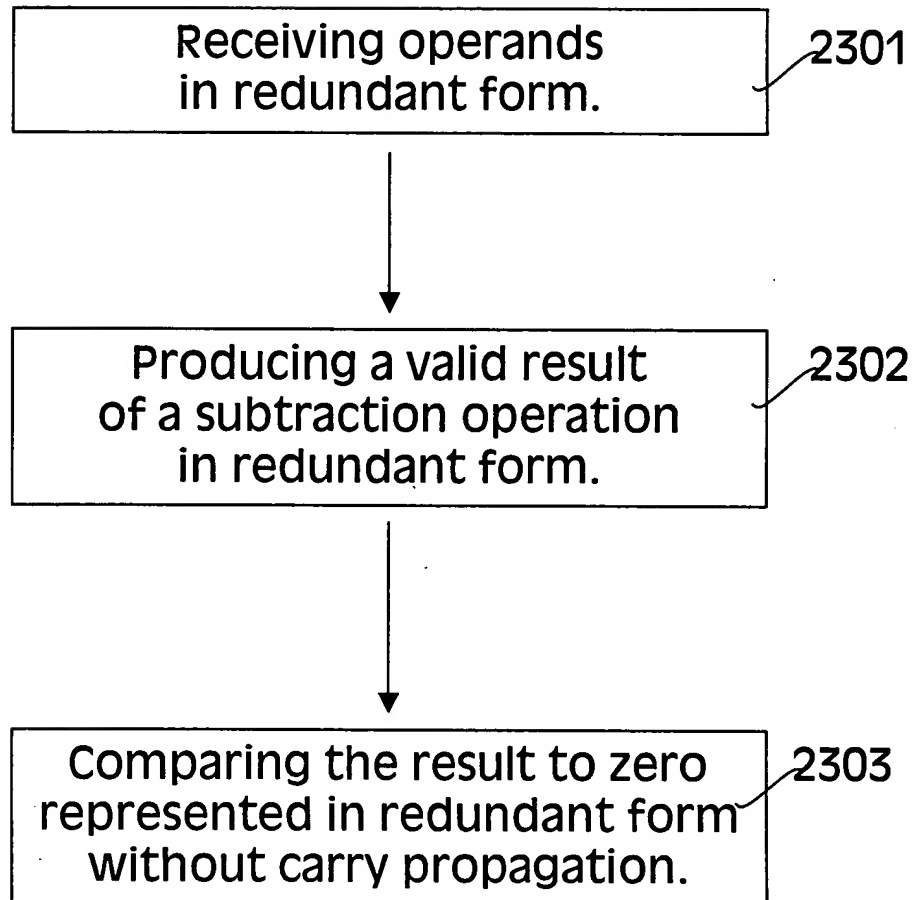


FIG. 24

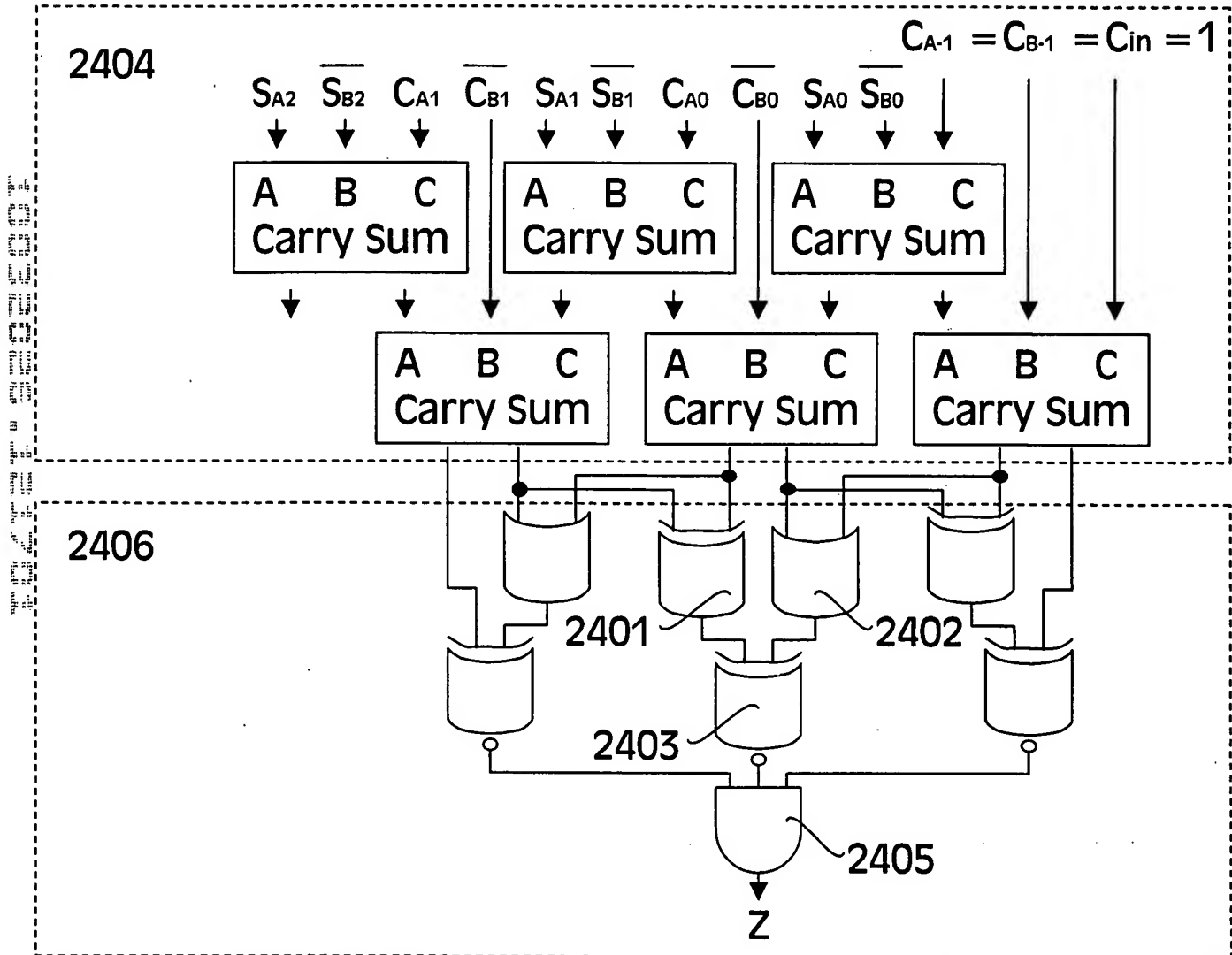


FIG. 25a

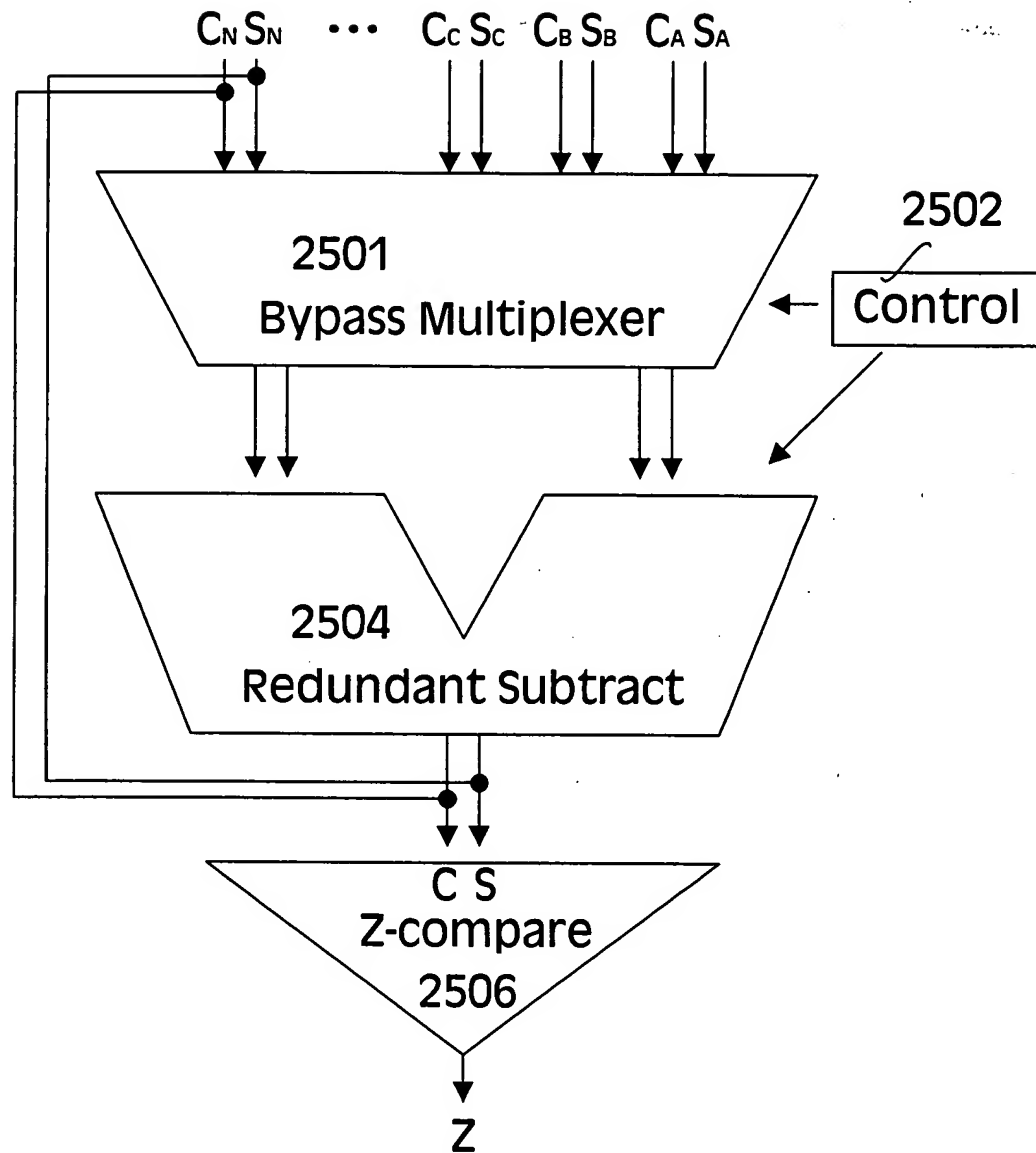


FIG. 25b

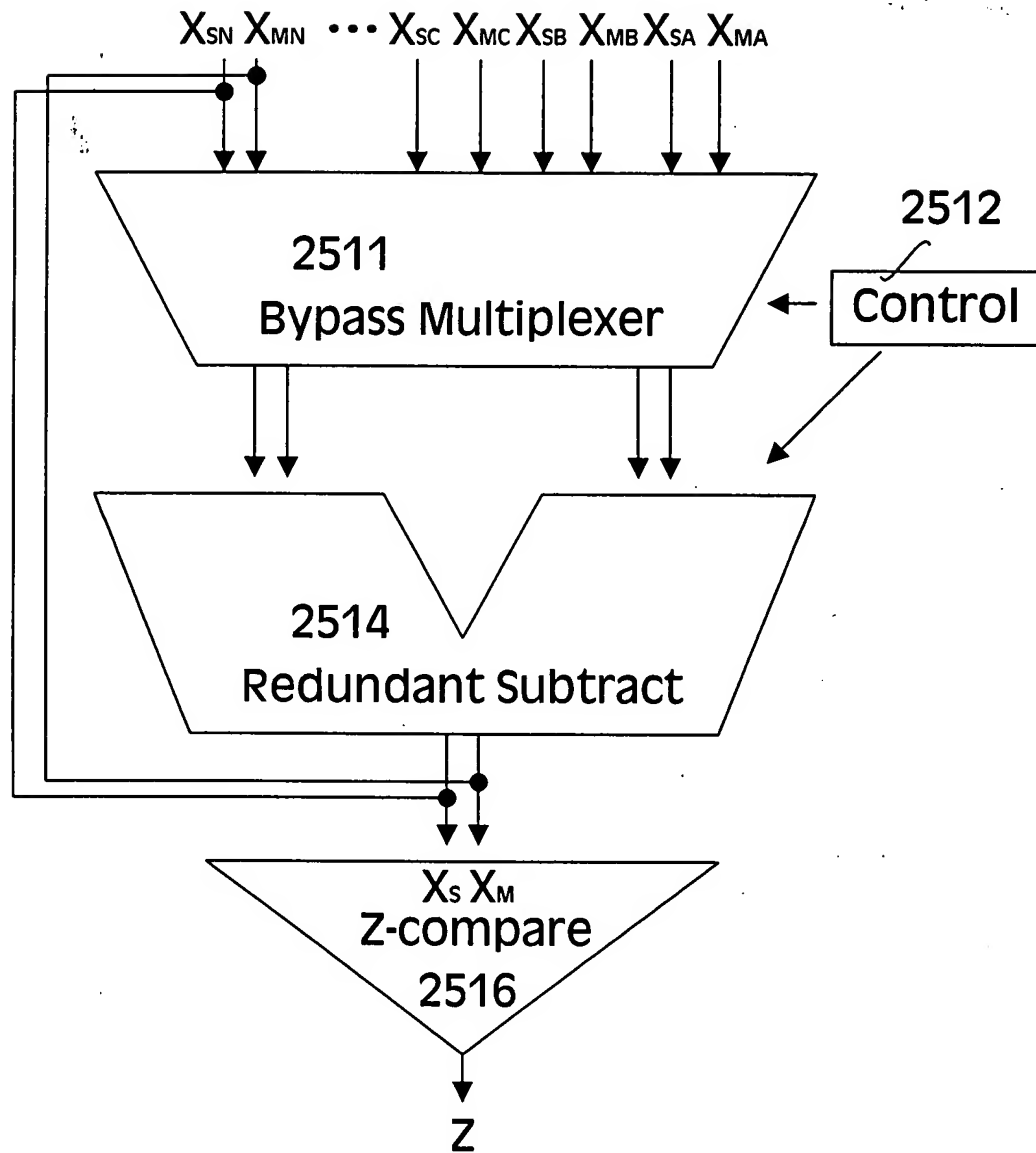
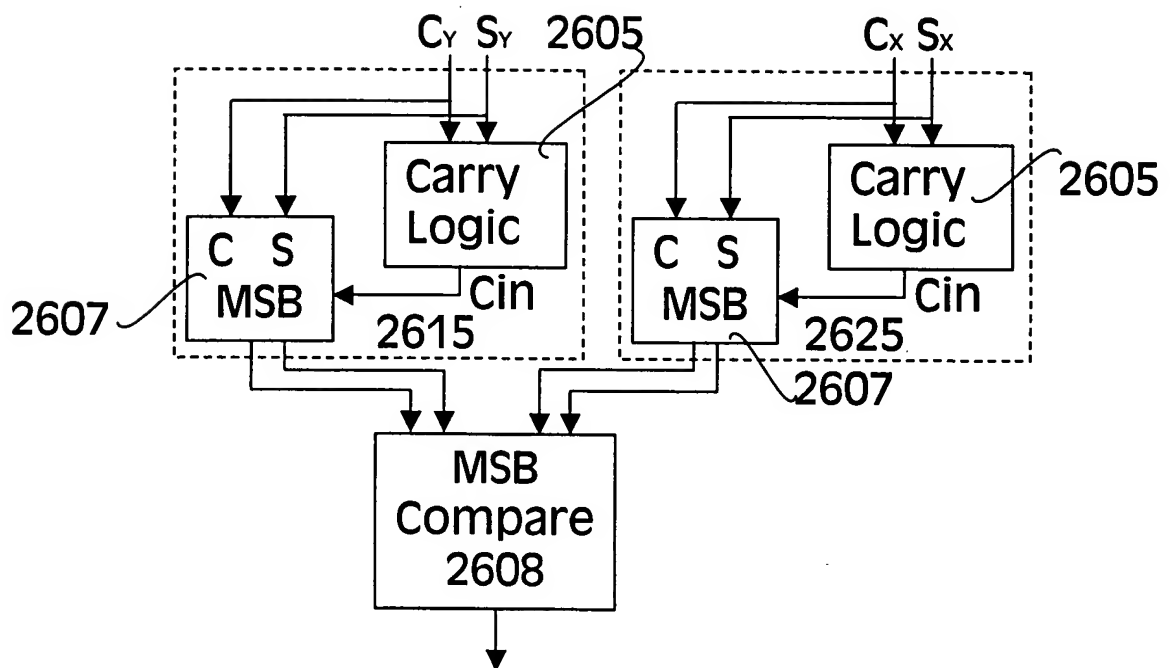


FIG. 26



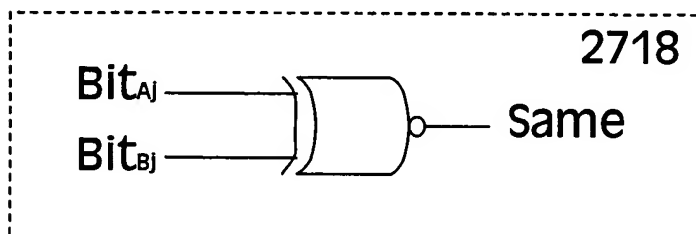
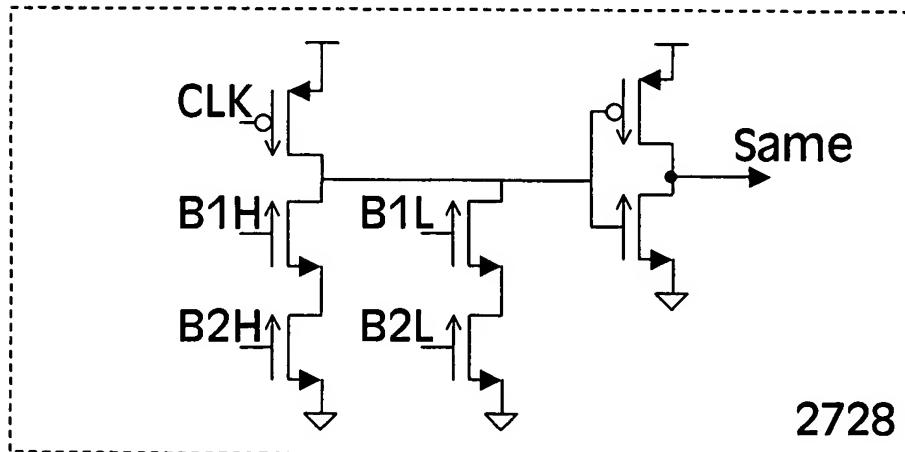
[illegible][illegible]



FIG. 28a

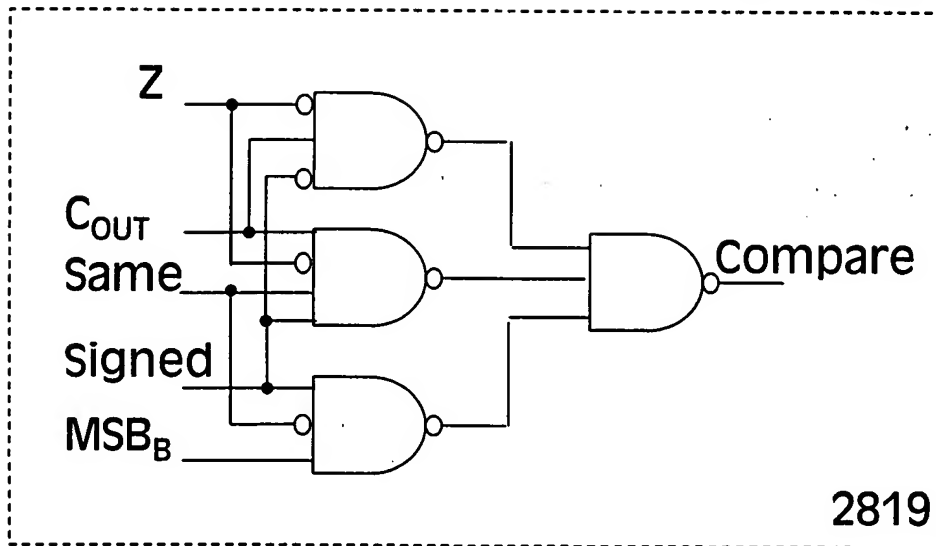
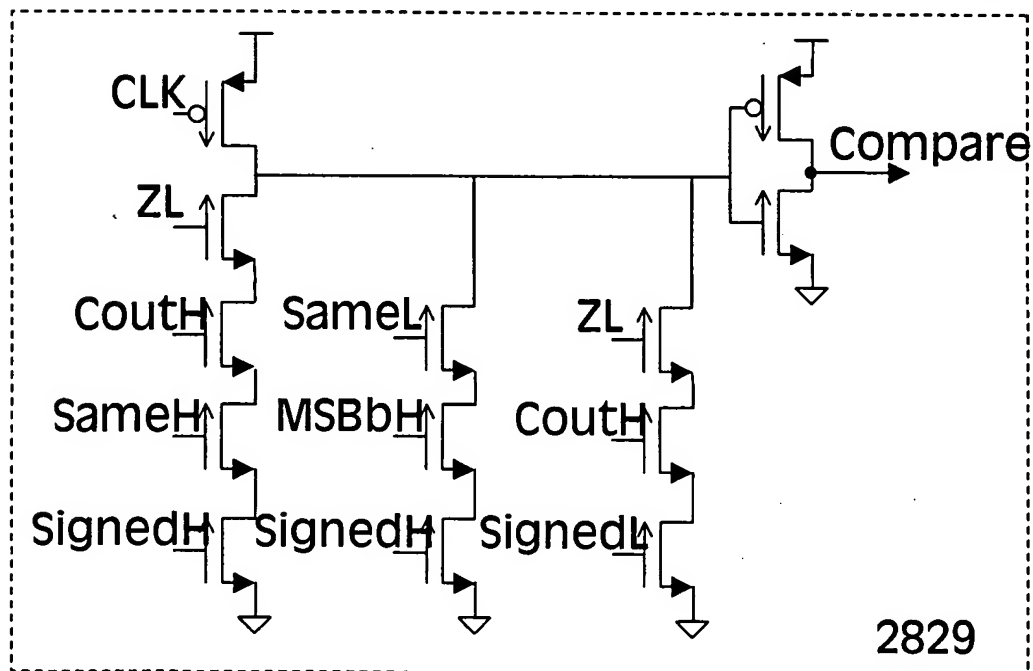


FIG. 28b



**FIG. 29**

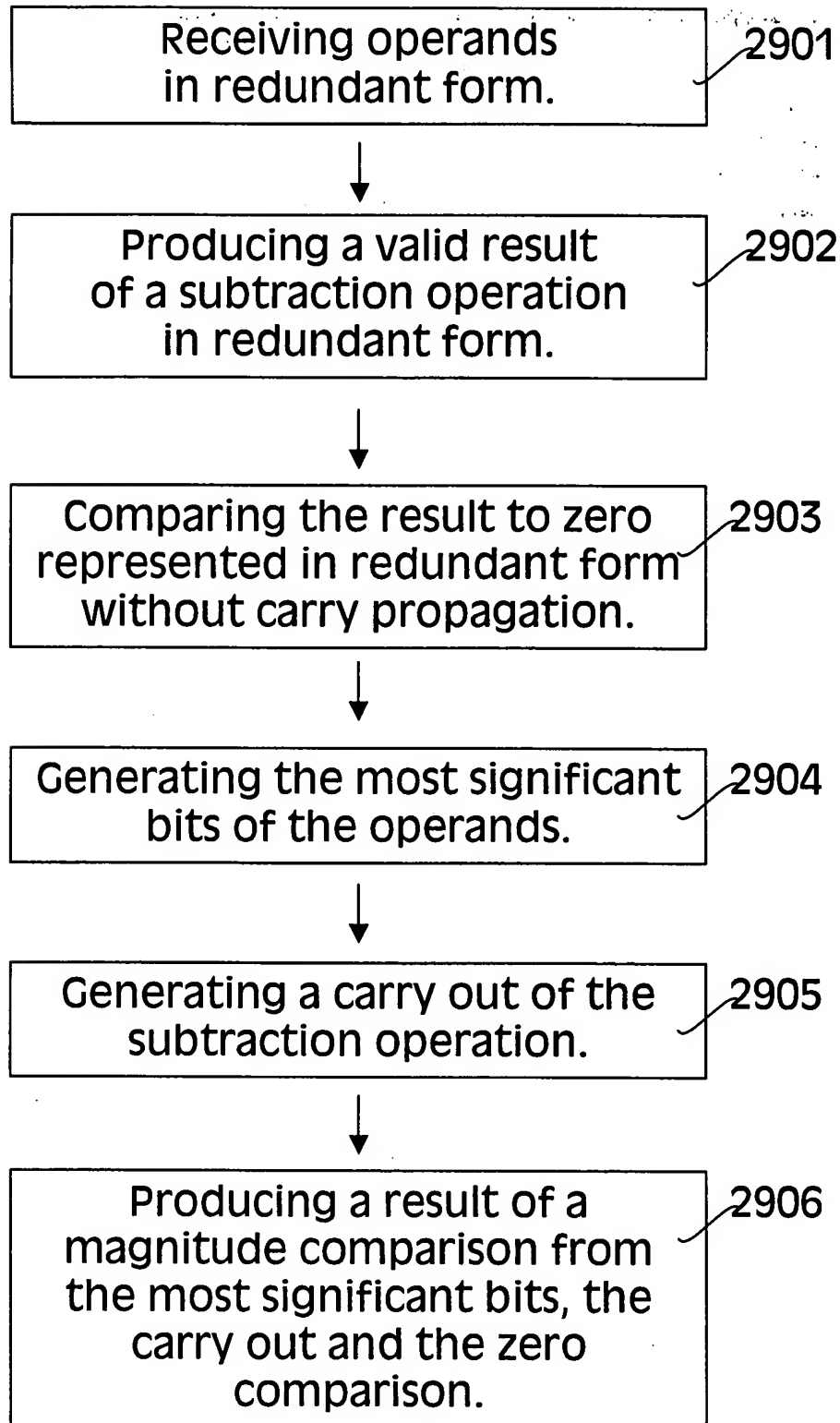


FIG. 30a

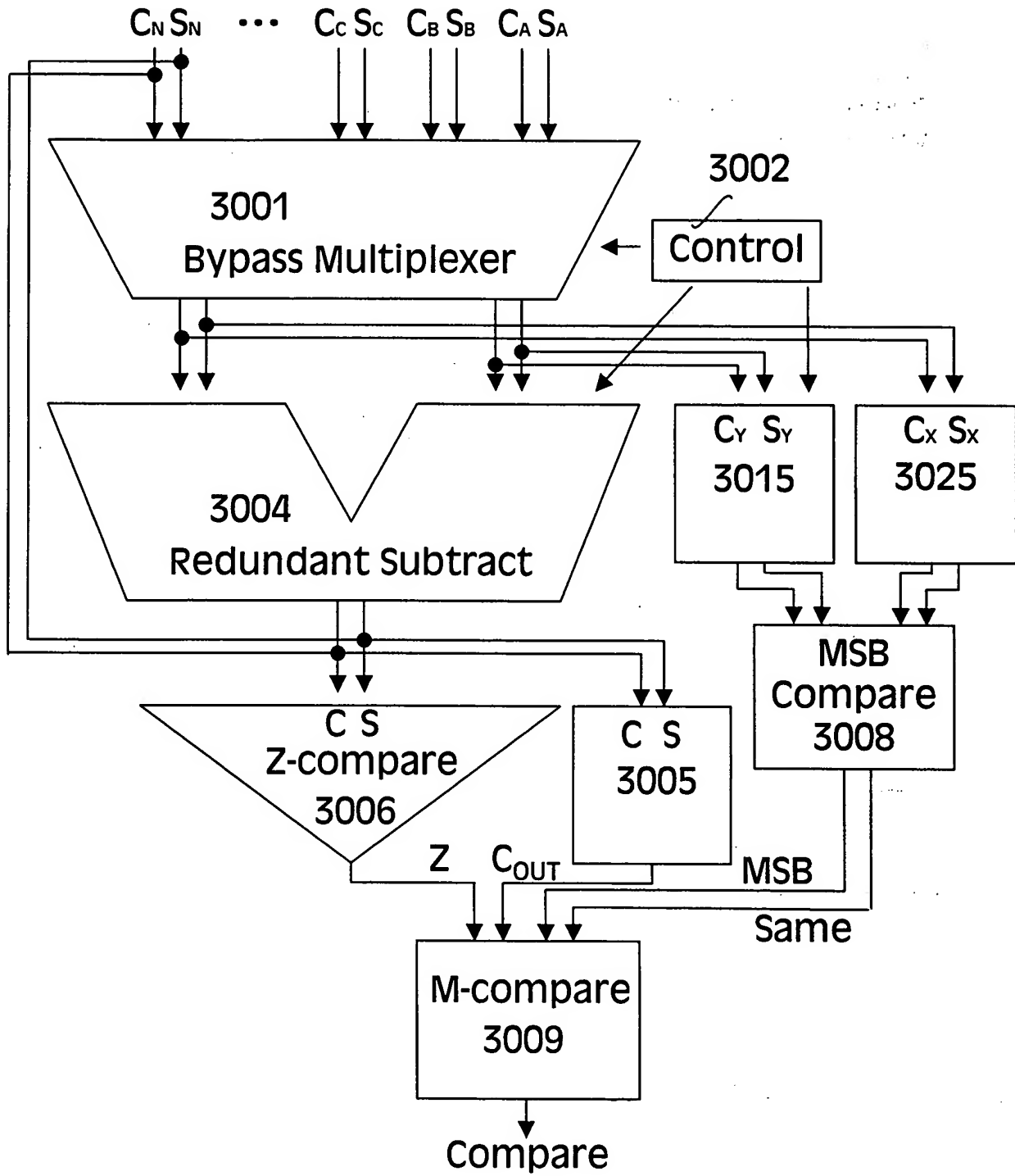


FIG. 30b

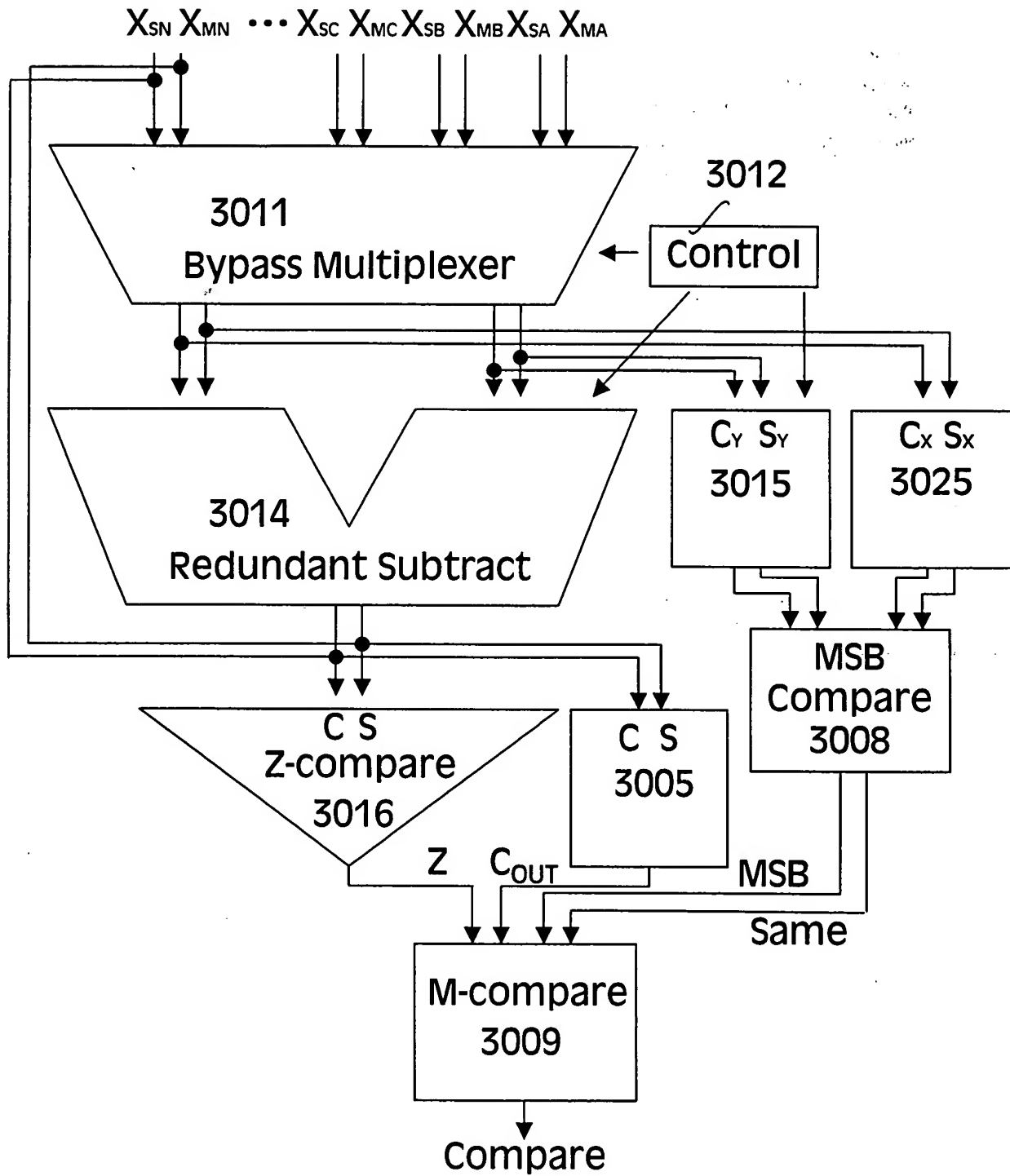


FIG. 31

